JUNE, 1958

# Industrial FINISHING

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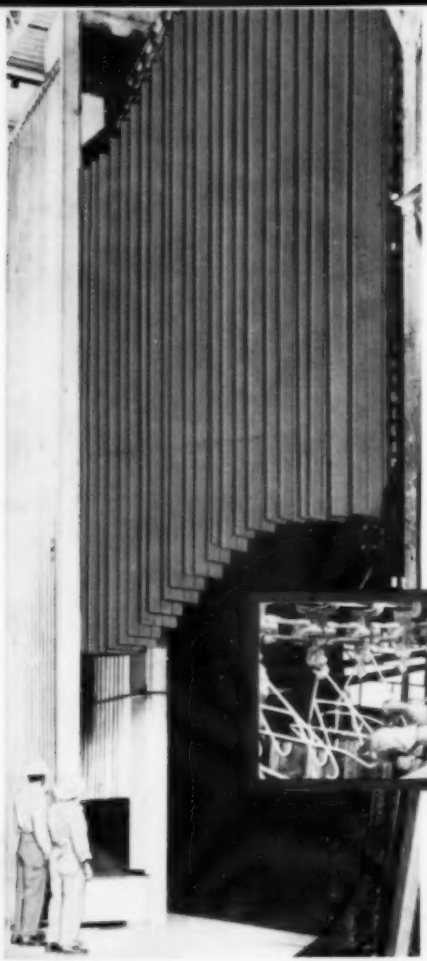


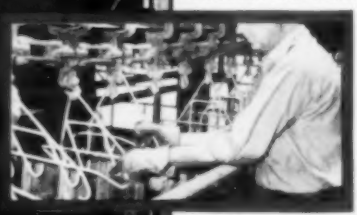
**World's biggest flow-coat problem . . . solved with Sherwin-Williams Kem® Enamel**

How do you flow-coat steel roof deck panels up to 28½ feet high—without runs, sags or vapor wash?

Inland Steel Products Co., Milwaukee, Wisconsin, faced this problem with its Milcor Steel Roof Deck. Usual materials and methods created uneven film protection due to vapor from lower portions.

Sherwin-Williams flow-coat specialists helped Inland Products engineers solve this problem. Now Milcor Roof Deck is finished with a baked-on epoxy enamel primer that resists scuffing . . . reaches every crevice of deeply grooved panels to give a heavy continuous coating . . . at lower cost than dip-coating with cheaper material!

Investigate what Sherwin-Williams Technical Service can offer in meeting your product finishing problems. Call or write The Sherwin-Williams Co., General Industrial Division, Cleveland 1, Ohio. In Canada: 2875 Centre Street, Montreal.



◀ *Hooking panels on conveyor 30 feet above floor at start of finishing line.*

COVER THE EARTH

**SHERWIN-WILLIAMS**
**INDUSTRIAL FINISHES**

# New Thermosetting Acrylic Finish

**resists detergents, abrasion, light and heat!**

# VITRILAN*

*Now* you can achieve a new excellence in finish performance with VITRILAN, Interchemical's *thermosetting* acrylic finish that brings improved all-around protection and lustrous beauty to appliances and other fabricated metal products.

VITRILAN is a really *new* finish that combines the color retention, the chemical and abrasion resistance of the acrylics with the hardness and toughness of a baking enamel.

Here's what this can mean to *you!*

. . . For home laundry and dishwashing appliances—outstanding soap and detergent resistance.

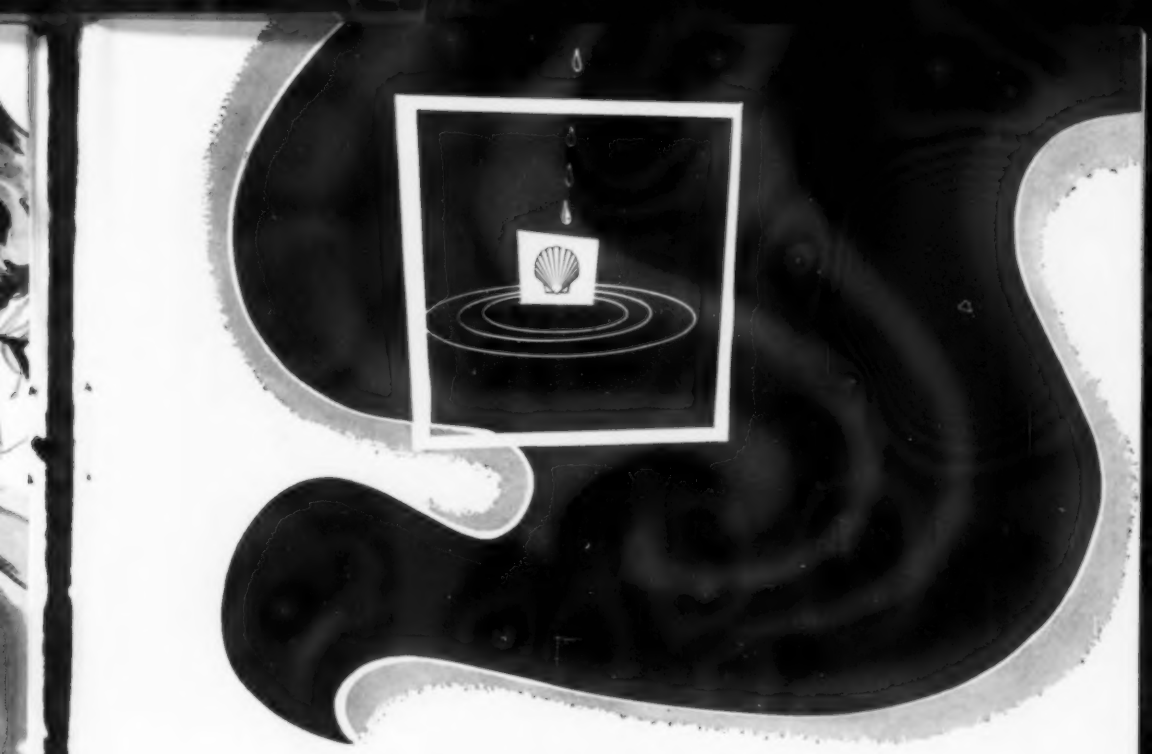
. . . For cooking and heating appliances—better color retention at temperatures up to 400°F., surpassed only by silicone finishes costing up to three times as much.

. . . For *any* appliance—improved resistance to abrasion, corrosion, food and drug staining plus remarkable gloss and color retention on exposure to light; produces whites that *stay* white longer.

**For the complete story, write for the new bulletin on IC VITRILAN.**

**Interchemical**
CORPORATION
**Finishes Division**

Headquarters Office: 224 McWhorter St., Newark 5, N.J. • Factories: Chicago, Ill. • Cincinnati, Ohio • Elizabeth, N.J. • Los Angeles, Cal. • Newark, N.J. • Mexico City, Mex. • In Canada, this product is made by Aulcraft Paints Limited, Toronto, Ontario, and sold under its trademark. **IC and VITRILAN are trademarks of Interchemical Corporation.*



# EAK . . . higher solvency means better coatings at lower cost!

HIGH BOILING EAK . . . with its *high solvency* for nitrocellulose and most organic resins . . . is finding steadily increasing use in a variety of surface coating formulations.

Ethyl amyl ketone teams up with low-boiling MEK and medium-boiling MIBK to provide better flow and gloss and helps to eliminate dry overspray.

Also, EAK's slow evaporation rate helps minimize pinholing and bubbling in the film. It possesses superior blush resistance and good diluent tolerance.

EAK is also an important component of thinners for automotive, furniture and other lacquers. This high-boiler is also being used successfully in multi-color lacquers. Cellulose esters, vinyl polymers and virtually all synthetic and natural resins are soluble in EAK.

And, EAK is now proving itself as a valuable intermediate in several industries.

Your Shell Chemical representative will be glad to discuss your specific solvent needs with you. Write for ORGANIC CHEMICALS, a catalog of Shell solvents, resins and intermediates.

**SHELL CHEMICAL CORPORATION**

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SHELL

**Bulman CORPORATION**

**uses tough custom finishes* and store styling service as key sales features**

Proper use of color is a vital part of any successful self-selection plan. That's why the Bulman Corporation takes full advantage of our styling service. Our studio created the soft pastel colors for the equipment, as well as a comprehensive styling coordinator for the store itself. It is a profitable combination that attracts customers and emphasizes merchandise. Best of all, this beauty is backed by practicality, since Bulman's baked enamel outlasts competitive finishes three times over!

GRAND RAPIDS VARNISH CORPORATION

**Grand Rapids, Michigan**

*Makers of the Famous* ®**Guardsman** *Finish and* ®**Guardsman** *Cleaning Polish*

THE BETTER THE FINISH, THE BETTER THE BUY

June, 1958
Vol. XXXIV, No. 8

BPA

A monthly magazine for company executives, production superintendents, process engineers chemists, purchasing agents, paint shop and finishing department foremen of industrial plants where product surface cleaning and painting are major operations in the manufacture of parts and products of all kinds.

# Industrial FINISHING

W. H. ROHR, Editor  P. C. BARDIN, Associate Editor

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*Accepted as Controlled Circulation Publication at Indianapolis, Indiana*

34 THIRTY-FOURTH YEAR OF PUBLICATION

# Random Comment

**More Air Conditioning.** 70% of the nation's 5,000,000 commercial and industrial business establishments are not mechanically air conditioned at the present time, according to a DuPont Co. market survey report pin-pointing non-residential areas of growth for the air-conditioning industry.

Manufacturers of cooling equipment may look forward to selling to about 300,000 of those establishments in the next year. That's the number, according to a nationwide survey just completed, who said they plan to purchase air-conditioning equipment within the next 12 months.

* * *

**Traveling Demonstration Exhibit.** In order to show and demonstrate the performance of its blast cleaning equipment to distributors and users in 25 states, Clementine Ltd., of San Francisco, has a traveling exhibition now on the road. Several different units of equipment are loaded on a truck. Three factory men travel along to lecture and demonstrate the use and possibilities of this equipment for surface preparation and other operations.

* * *

**Rubber Lining Lasts.** Twenty three years ago a Triflex rubber lining was installed by B. F. Goodrich Industrial Products Co. in pickling tanks at The Atlantic Wire Co., Bradford, Conn. A recent inspection shows that despite exposure to hot acid bath for nearly a quarter of a century, the rubber linings show little or no effect from this severe service.

The original Triflex lining, a layer of acidproof hard rubber sandwiched between two layers of soft rubber, is still intact and ready for more years of service. The lining seals three 6000-gallon tanks used for pickling low carbon steel rod and wire in 10% sulphuric acid at 180° F.

* * *

**Conveyor Tray.** A new conveyor assembly tray (looks like a bread pan with one side cut away) is lighter than aluminum but strong and durable. It is molded in one piece from Fiberglass reinforced polyester resin. It will never rust; and it resists oil, grease, water and most chemicals. It will not shatter or dent. The top flange is reinforced with an embedded wire rim for rigidity and strength. Smooth surfaces, rounded corners, and snag-proof edges eliminate handling hazards and prevent damage to the contents. A product of G. B. Lewis Co., Watertown, Wisconsin.

* * *

**Big Metal Letters Outside.** More companies are using metal letters or their own "logotype" in metal for identification in front of their offices or buildings. The letters may be cast or fabricated from sheet metal, or made up in other ways.

Three dimensional signs composed of individual metal letters have been

# Hold Everything!

*Could* you increase your sales if you had a better finish? *Many* firms have found they *could* . . . and they *did!*

We solicit your challenge to *improve* your finish or there will be no charge for the time or material we use in proving our point.

Whether your finish problem applies to wood, metal, Masonite or plastics, air dry or bake, lacquer or synthetic, pigmented or clear, our technicians are at your service in any of the territories we cover.

Write, wire or phone us *NOW!*

***Outstanding Products***

**INSTANT STRIPPER** — Fastest and Best #60 & 70 lines — Metal Coatings

**SPEX** — One Coat Multicolor Finish
**HI-SOLIDS** Lacquers

*"From the Start Consider the Finish"*

## V. J. DOLAN & COMPANY, Inc.

*Industrial Finishes of "UNQUESTIONABLE QUALITY"*

1830 N. Laramie Avenue Chicago 39, Illinois

BErkshire 7-0100

proved to be 30% more readily identified than ordinary signs. Metal letters are permanent. They can be styled and formed to harmonize with any individual style of architecture. Cast letters are available in many forms and types. One manufacturer has nearly 500 different alphabet styles in stock for cast aluminum or bronze letters.

* * *

**Automatic Ladder Leveler.** A new automatic ladder leveler, field tested for seven years, is now available for use by painters, construction and maintenance crews, and other users of extension or single type ladders. The "Levelit" Ladder Leveler provides safety features for workers where the placing of ladders on uneven levels is involved. The device is fully automatic, to permit setting ladders on stairs, sloping roofs, or on any uneven surface. Its mechanical design and construction automatically locates upon placement and self-releases automatically upon relocating the ladder.

* * *

**Safe Stairways.** The degree to which a stairway resists fire and provides a secure passageway largely determines how safe it is. There are other factors—how well it is lighted, etc.—but if a stairway won't burn and if it is constructed so as to give the most protection against falls, it is safe in itself and the building operators can add the other elements.

The hazard of staircases that are combustible, that can be consumed in a moment—with a stairwell turned into a chimney of flame—is obvious. But here's something not so well known about the roll of stairs in falls. Out of every 100 industrial accidents, 17 are falls; and out of 100 falls, 12 are on stairs.

**Elastic Roof Paint.** New roofs in a can—colorful, economical and easy to apply—are the recommended cure for the housetop plagued with small leaks and old age.

Called "Luma-Tint," this new aluminum-based roof coating is now being marketed nationally by James B. Sipe & Co. of Pittsburgh, Pa. It is available in eight colors, can be applied with a brush or spray gun, and brighter with the passing years.

In addition to waterproofing and decorating, Sipe's Luma-Tint remains elastic, reflective, and resistant to chemical attacks, drying out from the sun's heat and erosion from water. The aluminum flake pigment reflects the sun's rays, keeping the interior of a building many degrees cooler in summer.

* * *

**Goggle Cleaning Station.** The M-S-A Goggle Claining Station measuring only 7½ x 5 x 5-in. is easily mounted on a wall near the workmen who have to clean their goggles frequently. It contains a 4-oz. squeeze bottle of Fogpruf and a package of 200 optical wiping tissues.

To use the cleaning station the workman holds his goggles about 1-in. from the spray head on top, pushes a green button, being sure to treat both sides of the lenses and allow the liquid to dry on the glass. Then he takes a clean optical tissue, extending from the bottom, and polishes the lenses. The Fogpruf spray has vigorous cleaning and anti-fogging powers. It removes dirt and grime without streaking, and coats the lens surface with a micro-thin film that protects against fogging for hours after application.

---

Human behavior is responsible for 70% to 80% of industrial accidents, according to a recent report.

**BLACK BROTHERS**

# HEAVY-DUTY ROLLER COATERS

## FEATURES

- 21 Standard Sizes From 8" to 122" Wide Capacities
- 0-4½" Thickness Adjustment
- Single or Double Coaters
- Patented Safety Control
- Drip-Proof Reservoirs
- Precision Ground Rolls
- Ball Bearing Throughout
- Micrometic Adjustments
- Single or Variable Speed Drives

**Plus many extra-value optional features**

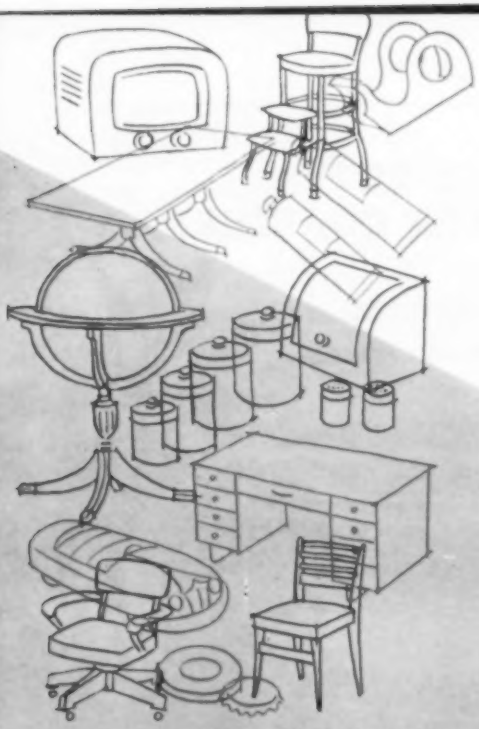
## SPEED LOW COST, HIGH QUALITY COATING

Whether your finishing needs are intermittent or geared to 24-hour-a-day automation, Black Brothers Roller Coaters can boost your production, reduce down-time, cut coating costs. These are heavy-duty machines, built rugged and rigid to *maintain* high quality production and trouble-free performance. Heavy distortion-free rolls apply *uniform* coatings — assure longer coating roll life. Chrome coated oversize doctor rolls give finer doctoring action.

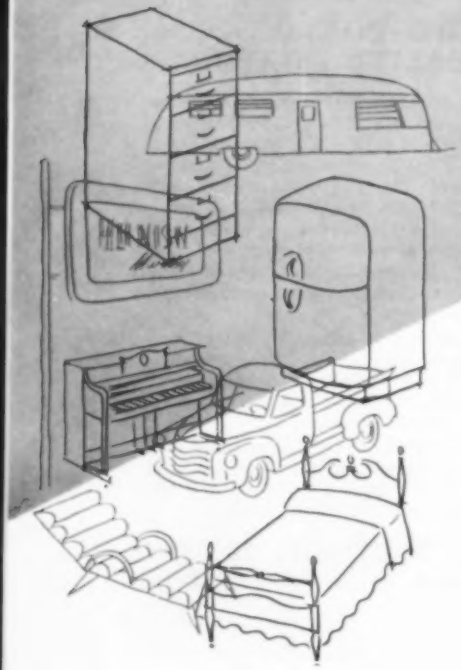
Versatile, economical — Black's Roller Coaters apply lacquers, paints, sealers, varnishes, waxes, etc. to flat work such as wood, metal, plywood, composition board, hardwood, plastic, cardboard, cement board.

Write today for literature describing the oldest — most complete line of roller coating equipment, available with plus-value optional features to meet *your* finishing needs.

**THE BLACK BROTHERS CO., INC.**
**Mendota 1, Illinois — *SINCE 1882***



## *WHATEVER YOU MANUFACTURE–*



**if it's a painted product— LILLY can supply the finish..."tailor-made" to suit the job.**

Development and production of Industrial Product Finishes for specific use is an important part of LILLY technical services designed to help manufacturers in the finishing field.

# Look to Lilly

**as a dependable source**

**for High Quality**

**INDUSTRIAL PRODUCT FINISHES**

*Serving Industry Since 1865*

**LILLY VARNISH COMPANY • Indianapolis, Indiana**

AFFILIATED PLANTS / LILLY VARNISH OF MASSACHUSETTS, GARDNER, MASS.
THE LILLY COMPANY, HIGH POINT, N. CAROLINA
PRODUCTOS AUROLIN, S. A., MEXICO CITY

# why Firestone makes 5

Exon engineers meet demands of various types of protective coatings with resins pin-pointed to specific needs

*EXON 450*

*For low cost strip coatings. Good solubility, tensile strength and durability.*

Each method of applying protective finishes must answer special needs to do its job best. With some, it may be the ability to adhere to metal; with others, stripping ease. Because of these diverse requirements, Firestone engineers have developed 5 different Exon solution resins. Each is engineered to meet the needs of particular finishes.

Exon solution resins differ in solubility and adhesion to fit precise requirements of various solution coatings. Each is resistant to chemicals, abrasion, corrosion and weather. All dissolve quickly in appropriate solvents.

No wonder manufacturers of solution coating turn to Firestone Exon solution resins to solve their production problems. Consider your own. Then, for a solution resin pin-pointed to the best answer for you, check with Firestone.

# *different solution resins . . .*

*EXON 461*

***A unique fluorine-containing resin combining high solubility, unusual chemical resistance, heat stability, and weatherability.***

*EXON 470*

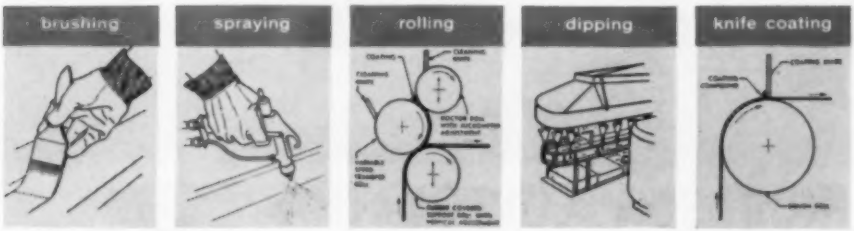
***Excellent adhesion to metals, alkyds, vinyl surfaces. Compatible with wide range of drying oils, alkyds, phenolics, melamines. High solubility in low-cost solvents.***

*EXON 471*

***Excellent for weatherability and durability in a protective coating. Corrosion resistant.***

*EXON 481*

***Makes possible high strength, colorful, abrasion-proof coatings that resist fading or cracking.***




***For complete information and technical service, call or write:***

***CHEMICAL SALES DIVISION:*** **FIRESTONE PLASTICS COMPANY**

Dept.845H, POTTSTOWN, PA. • A DIVISION OF THE FIRESTONE TIRE & RUBBER CO.

IN CANADA, CONTACT CHEMICAL SALES DIVISION, FIRESTONE TIRE & RUBBER CO. OF CANADA LTD., HAMILTON, ONT.

# AIRLESS DOES BOTH JOBS

## use Nordson airless spray coating equipment for interior plant maintenance as well as for production painting

A New Jersey manufacturer* says this about the Nordson Airless Spray Painting process—"Paint savings as high as 25%"... "Savings of solvents by reducing paint with heat"... "Savings in time by using Pole Gun, thus eliminating use of ladders and scaffolding"... "Reduces expense by not working overtime in production areas"... "Savings in clean up time"... "Fast coverage"... "Less interruption of production due to minimum of fumes or paint in the air."

*This 160x50x18 ft. . . area was Airless spray painted at half the cost of previous conventional methods used.*

**NORDSON CORPORATION**

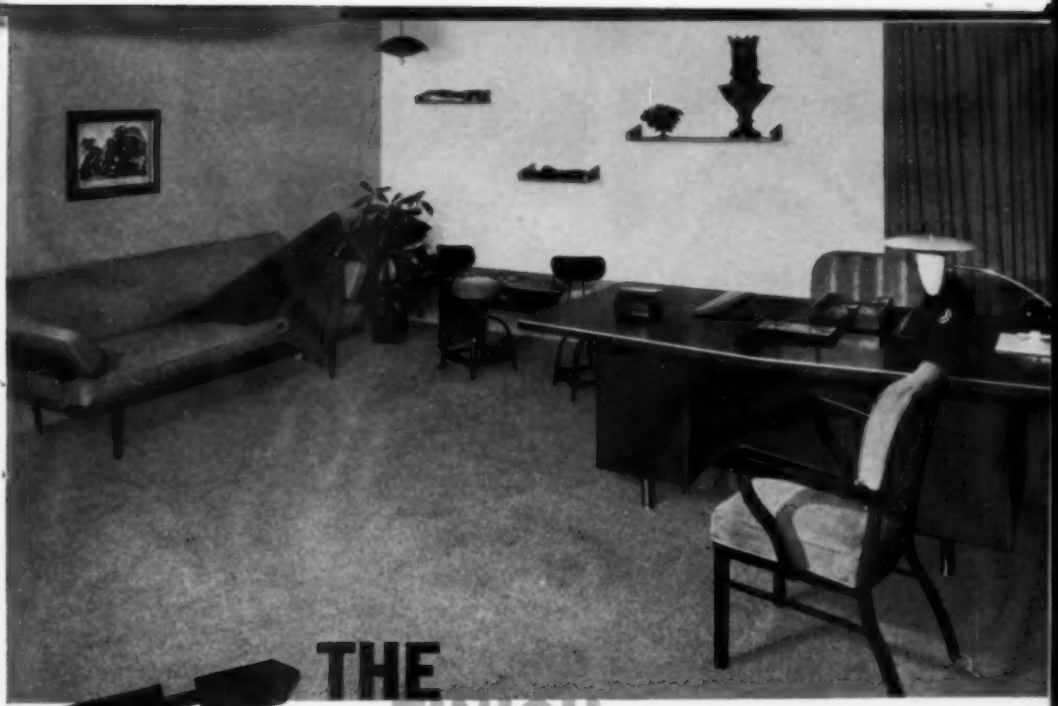
FORMERLY BEDE PRODUCTS CORPORATION

**THE BEST IN SPRAY COATING EQUIPMENT**

AMHERST, OHIO YUKON 8-4473

*In Canada: 864 Pape Avenue, Toronto, Ontario*

*Write for Airless Spray Painting brochure*



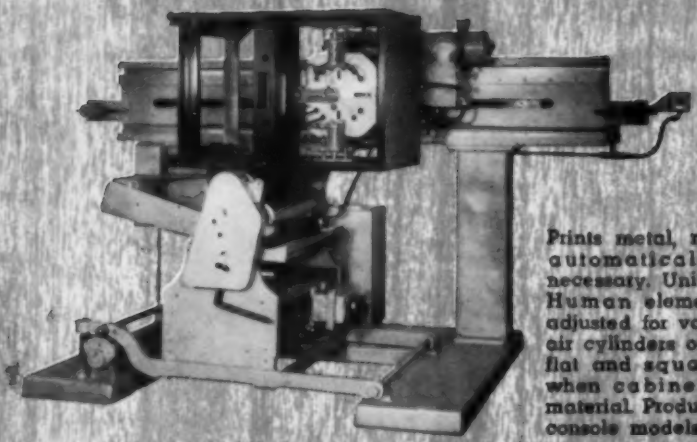
# THE FINISH IS HALF THE SALE

*This office especially designed for Oscar Schoeffler, Fashion Director of ESQUIRE. Desk and chairs by Columbia Steel Equipment Co., finished in Spruance custom colors.*

Latest motivation research studies show that buyers of furniture for office or home are influenced heavily by the color or finish . . . up to 50% in most instances. ■ This bears out what Spruance has believed for a long time. It's the reason we go beyond the routine in exploring buying preferences . . . actually work well in advance of fashion trends by sounding out decorating authorities and home and office furnishings editors. This is your assurance of a wide selection of colors and metal or wood finishes that *sell* . . . when you work with Spruance. ■ Whether the office furniture or other products you market are metal or wood . . . or whether you are interested in maintenance paints around the plant . . . you'll be better off to start with a Spruance Finish. Call, write or wire for more details.

**The Gilbert Spruance Co.** • *Philadelphia 34, Pa. Winston-Salem, N.C.*
*Wood Finish Originals • Metal Finishes • Maintenance Paint Products*

Spruance



Prints metal, masonite or wood cabinets automatically. No jigs, no fixtures necessary. Uniform printing, no misprints. Human element eliminated. Quickly adjusted for various sizes. Cabinet held by air cylinders on inside, assuring a perfect, flat and square printing surface even when cabinets are made of thinnest material. Production-2 per minute on large, console models.

# Wood

This machine is built in various sizes from the narrowest up to 36" wide, for the graining of various sizes and thicknesses of panels, tables and similar work. Can also be used for edge graining. Explosion-proof motor is mounted beneath a solid base, eliminating fire hazards.

This trademark SCHMUTZ recognized as builders of fine printing machinery since 1923.

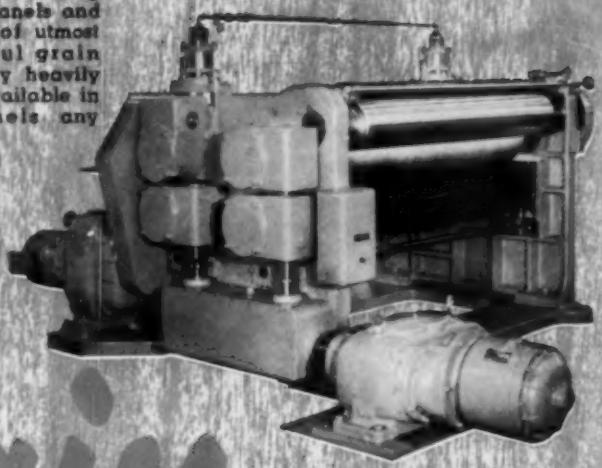
This trademark is known not only in this country, but throughout the world for modern and highest quality printing machinery. Now manufacturing more than 60 different types and models.

VISIT OUR PLANT, SEE THE MACHINES UNDER CONSTRUCTION AND DOING ACTUAL WORK ON OUR TEST FLOOR.

SCHMUTZ MFG. CO.

1600 W. MAIN ST.
LOUISVILLE 3, KY.
U. S. A.

**Reverse Roll Coater** for eliminating imperfections in hardboard panels and other sheet material, which is of utmost importance in securing beautiful grain effects. These machines are very heavily and accurately built and are available in two sizes for 36" and 48" panels any length and up to 2" thick.

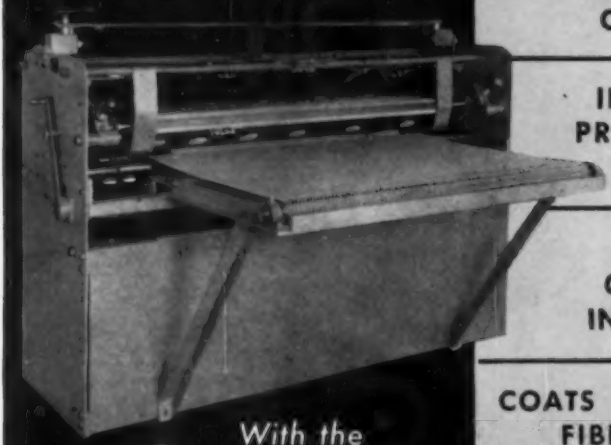


# Grain

# REPRODUCING EQUIPMENT

This large, heavy duty machine has been especially designed for printing unusually beautiful grain effects on large panels. Panels are automatically fed through the machine so that perfect registration of design can be had. Machine carries two sizes of engraved cylinders: 10" diameter for straight grain and 20" diameter where design of wood is such that repeating is objectionable. Standard size machines will handle panels 36", 48" and 84" wide, up to 12' long and from the thinnest to 2" thick.

# PRODUCE MORE! FASTER!



With the

## GASWAY ROLLACOAT

UP TO 50% LESS PAINT COST

APPLIES MANY TYPES OF COATINGS

INCREASES PRODUCTION RATES

LOW ORIGINAL INVESTMENT

COATS WOOD, METAL FIBREBOARDS CARDBOARDS, PLASTIC

BETTER QUALITY FINISHES

HIGHER LABOR EFFICIENCY

*SEND THIS COUPON TODAY OR WRITE FOR FULL DETAILS*

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6463 No. Ravenswood Avenue, Chicago 26, Illinois
Please send me complete information on Gasway Equipment for rollercoating

Name_____ Title_____
Company_____
Address_____
City_____ State_____

GASWAY CORPORATION
6463 No. Ravenswood Ave.
Chicago 26, Illinois

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For further information on what manufacturers have to offer —literature, products, supplies, etc., mentioned in the editorial departments, use "Reader Service" return card in the rear section of this issue, page 132.

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Industrial FINISHING

JUNE, 1958, issue

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# Send your inquiries to

**INDUSTRIAL FINISHING** Magazine for information about technical paint coating problems, methods and processes; and for sources of supply for organic finishes, equipment and supplies to be used in connection with surface preparation and conditioning, paint application, sanding, paint drying and baking, rubbing, polishing, etc.

Surfaces to be completely or partially coated for protection, decoration or for any other purpose, include components and articles made of metals, plastics, woods, and composition materials; also paper, leather, rubber and fabrics.

The services of many testing laboratories, finishing consultants and special technicians are often available.

These inquiries are promptly answered. As a result, new products, materials and sources of information are continuously being uncovered; valuable contacts are made and timely suggestions for future articles to be published are often developed.

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First Class Permit No. 1490, Indianapolis, Indiana

**Industrial Finishing Magazine**

1142 N. Meridian Street

Indianapolis 4, Ind.

## to produce a rubbed appearance or a waxed feel

# PERFEX SATIN FINISHES

have long been recognized and acknowledged as the BEST flat finishes made. NOW these flat finishes have been made more desirable than ever because of these new features—

- Dust free time has been greatly reduced.
- Print free resistance has been greatly increased.
- Clarity has been greatly improved by its new pale color.
- Drying time has been reduced.
- Rubbed effect appearance and wax effect feel have been improved.
- Body and build have been improved . . a synthetic with varnish build.

PERFEX SATINS are available in a full range of sheens to produce the exact rubbed effect and waxed feel you wish.

PERFEX was the original "flat" to be made by a new and different process (without the use of stearates or flattening agents) and it is still the "flat" which comes nearest to producing an actual rubbed varnish appearance. It is the *Perfect* flat finish—quick set, quick dry, waterproof, liquor proof, good build, full smooth body, beautiful rubbed effect, smooth waxed feel.

## PERFECTION

If you manufacture furniture and are interested in securing an excellent rubbed finish effect, without a costly rubbing operation, we invite your inquiry.

PAINT AND COLOR COMPANY

INDIANAPOLIS 2, INDIANA

# One coat does the work

## AMAZING NEW

# DURA

**DURACRON ALONE** combines in a single finish superior adhesion, color and gloss retention, durability, flexibility and resistance to chemicals, grease, humidity, moisture, salt spray, stains and impact—for a variety of uses.

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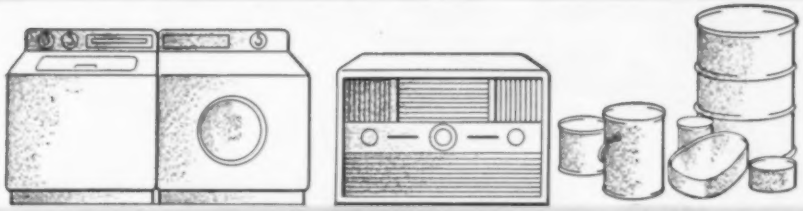
**THERMO-SETTING ACRYLIC ENAMEL**



## Now . . . tailored to your finishing needs!

**Today's biggest news** in finishes is the development of amazing DURACRON in a variety of formulations for many end uses. Since its introduction, this revolutionary chemical composition has convincingly demonstrated its superiority to ordinary baking enamels. *One coat does the work of the conventional two-coat finishing system.*

• **Now . . . DURACRON** is made available in a wide range of properties to enhance sales appeal and utility of products on which it is used. It can be sprayed, dipped or roll-coated. It can be cured at lower temperatures. And it can be used either as a one-coat enamel or as a topcoat with various primers. Mail coupon for more information.

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**Pittsburgh Plate Glass Company, Industrial Finishes Division, 1 Gateway Center, Pittsburgh, Pa.**

Gentlemen: Please send me your new brochure, containing information about DURACRON Thermo-Setting Acrylic Enamel, and how it reduces manufacturing costs.

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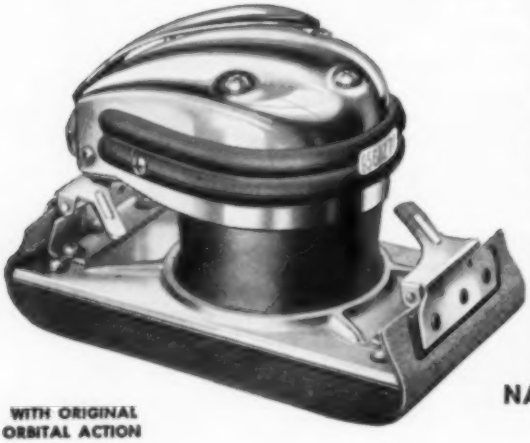
SO **TOUGH**

YET SO *Smooth*

NS

"Ice Follies" Photo
Courtesy Shipstad and Johnson

*National Sanders*



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**NATIONAL-DETROIT, INC.**
**Rockford, Illinois**

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Yes, the right new finishes always make more money for manufacturers. New finishes can add a distinctive touch to your products . . . revolutionize your sales patterns within a few months.

Perhaps your product needs new sales impact. Why not increase your potential with a specifically designed Wolverine finish too? Our creative laboratories are at your service to help develop an entirely new, sales-stimulating Custom Finish for you . . . that will be yours . . . and yours alone.

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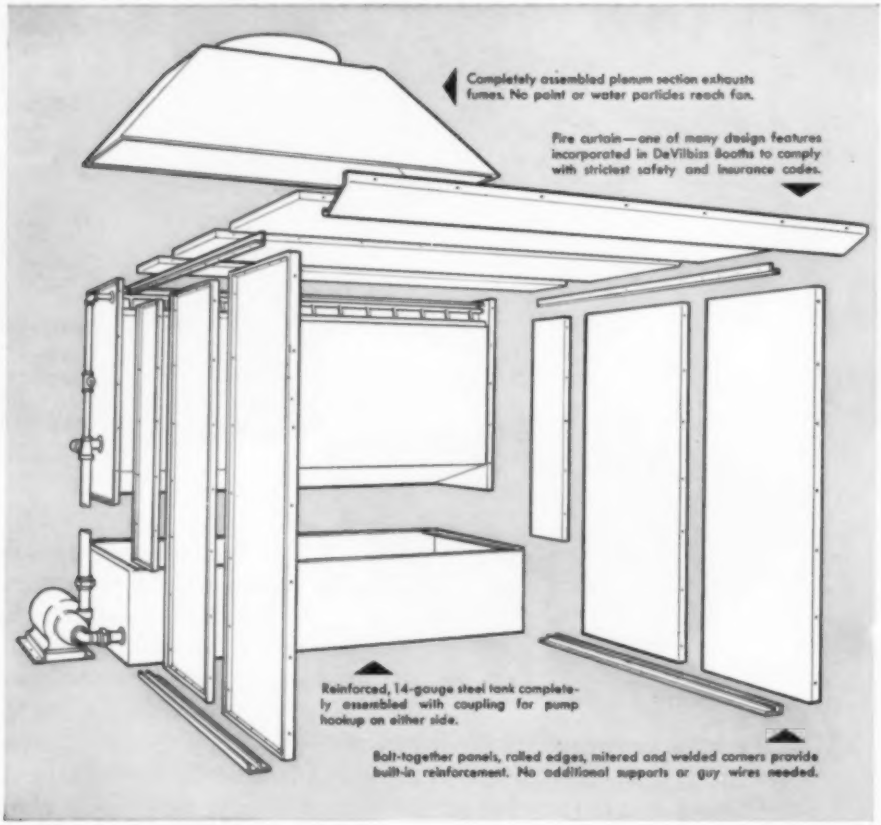
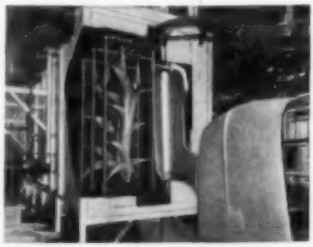
Plants in Grand Rapids, Michigan; Louisville, Kentucky; and Morganton, North Carolina

# How DeVilbiss Standardized Spray

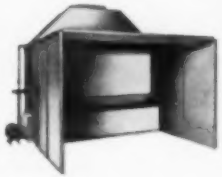

Completely assembled plenum section exhausts fumes. No paint or water particles reach fan.
Fire curtain—one of many design features incorporated in DeVilbiss Booths to comply with strictest safety and insurance codes.
Reinforced, 14-gauge steel tank completely assembled with coupling for pump hookup on either side.
Bolt-together panels, rolled edges, mitered and welded corners provide built-in reinforcement. No additional supports or guy wires needed.

*DeVilbiss Spray Guns.* Complete range of models for maximum efficiency for all production requirements. Send for Catalog I-2000.

*Newcomb-Detroit Flo-Coaters.* Save manpower, floor space. Generally used for prime- or single-coat applications. Write, stating requirements.



# Booths save assembly costs



**Prefabricated parts bolt together to form a rigid, self-supporting structure. It's quick, easy! Wide selection of sizes and types**

**More value for your spray-booth dollar.** DeVilbiss "ready-made" booths can be assembled quickly and economically by simply bolting standardized parts together; are easily modified to meet future needs. Mass-produced panels, accurately sized and punched, are self-reinforcing . . . form a rigid, free-standing structure. Snug fit provides a smooth, easy-to-clean interior surface.

DeVilbiss Spray Booths have outstanding design and construction features that are responsible for their high paint-trapping efficiency, their ease of installation. And you save on operating costs, too. Perfected design principles reduce power consumption of fans and pumps. Booths stay cleaner longer; require less maintenance time and expense.

They are manufactured to the standards of the National Board of Fire Underwriters for spray booths as recommended by the National Fire Protection Association.

**Selection and delivery are no problem, either.** In most cases, one of over 500 standard sizes and combinations will fit your needs. But should you require equipment for a special installation, or help in selecting and pricing components, a DeVilbiss representative will be glad to work with your engineers at no cost or obligation.

**PLUS VALUE:** At DeVilbiss, you deal with the *only* one-source designer and manufacturer of completely engineered finishing systems or individual components. Call your nearest branch office, today. Or write for a copy of the Spray Booth Catalog I-7000 containing handy selector guide.

DEVILBISS

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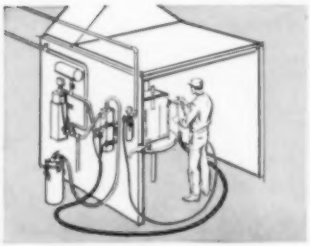
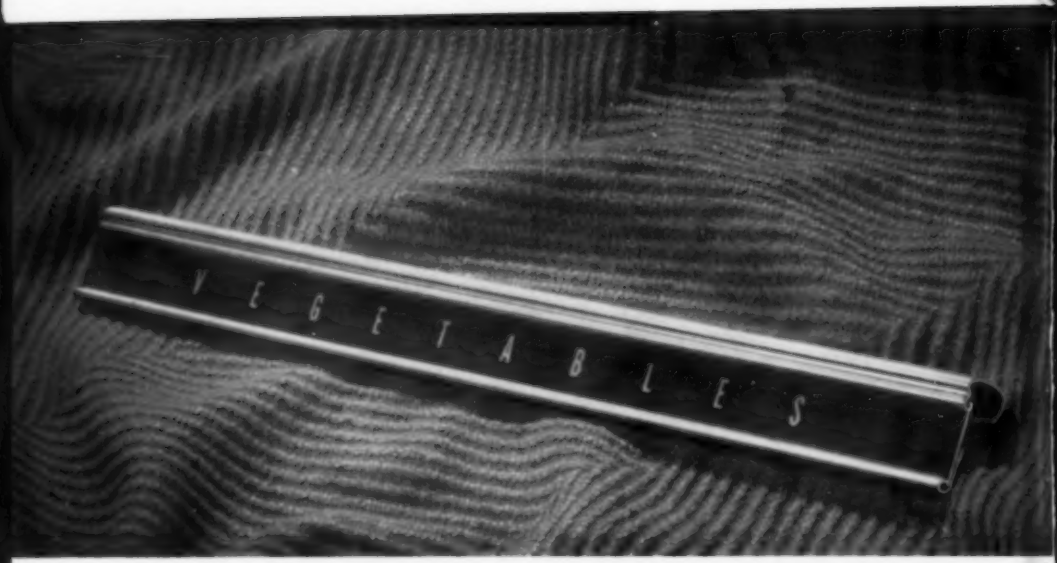


*DeVilbiss Hot Spray.* Provides heavier film build, with faster drying, less overspray, fewer rejects. Send for Bulletins IE-1148 and F-286.

*DeVilbiss Fluid Hose.* Unsurpassed for resistance to solvents, oils. Flexible, kink-proof. Full line of connections. Send for Catalog IE-E.




# Anodizing and Color Decorating ALUMINUM PRODUCTS

**By Donald Saffel**
Plant Manager, Bright-O, Inc.*

WE SPECIALIZE in products fabricated from two metals—extruded aluminum and stainless steel. These products are used chiefly in the automotive and appliance industries. They become mouldings, name plates and emblems on cars; and escutcheons, name plates, handles and pulls for refrigerators and other appliances. The aluminum parts are either anodized, color anodized or permanently brightened; some are decorated with color—applied by spraying through masks and/or by screen processing. The stainless steel parts are electrochemically cleaned and permanently brightened, and some are decorated with enamel.

*Hamilton, Ohio.

### Prior to Dyeing and Sealing, Aluminum Is Anodized

The color anodizing process we use can best be explained by taking a few examples. First, let's take a freezer compartment handle like the one illustrated above. This is color anodized in gold. The recessed flat area is a medium tone of green-blue and the lettering is applied by screen processing. This particular "handle" is an aluminum extrusion about 1¼-in. wide and 12-in. long with the center area slightly debossed.

The anodizing cycle begins far in background and proceeds through various solutions and rinses. Agitators operate in some tanks to keep the solutions uniform.

After fabrication the handles are placed on racks. These racks will hold from 12 to 120 pieces, depending on the size and shape of the part or pieces being processed. Some are larger and some are smaller than the one illustrated above the title of this article. From the loading station racks are carried by an overhead monorail, cable conveyor to the vapor degreaser. Because of a wide variation in the size of parts, we have found manual degreasing most expedient. The parts are lowered into the vapor zone to remove soil, then flushed

Spraying background color enamel on recessed flat area of handle through a precision metal mask. The part is held in close contact with the mask by compressed air. The infrared electric oven is in extreme left background; the screen process machine is at the right.

with liquid trichlorethylene before they are returned to the conveyor to begin the anodizing cycle.

The first tank contains a mild caustic solution which is heated to 120° to 140° F. Parts being processed remain in this solution from 10 to 60 seconds, depending on their surface contour. This solution removes any residue that may have been left from the trichlorethylene treatment. Then comes a cold water rinse of 10 to 30 seconds duration. In the third tank, the parts remain in a phosphoric acid solution heated to 210° to 212° F. for 30 to 120 seconds. In the fourth tank, they are rinsed for 30 to 120 seconds, in water heated to 140° F. The surfaces of parts must be free of any white residue before being withdrawn from this No. 4 tank. The parts

**Includes metal cleaning and anodizing, the application of color dyes, sealing in the dye, spray painting through a mask, baking, screen process printing plus a final baking.**

are then rinsed in cold water in the fifth tank and allowed to remain there until at least four racks have been accumulated.

The aluminum pieces are then placed in a sulfuric acid solution for 12 to 16 minutes for anodizing. The acid solution is thermostatically controlled at 78° F. plus or minus one degree. To prevent the temperature of the acid solution from increasing, it is cooled by be-

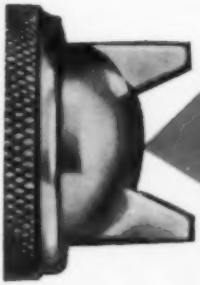
Lettering is applied to handles by screen processing, as shown at left. Spray booth is in background; infrared electric oven is at right.

YOUR

# OVERHEAD

IS

# OVER HERE



The overspray in your water curtain is a cause of overhead cost. While the overspray cannot be eliminated, the cost of removing deactivated paint from the spray booth tank and the water circulating system can be.

Periodic filtration of paint spray booth wash water prevents deactivated paint from settling to the bottom of the tank by removing the paint matte while it is floating. Recirculation of the paint in the system is prevented and water nozzles remain foul-free. Such maintenance costs are eliminated.

Only Delpark offers filtration for paint spray booth wash water. A Delpark field engineer will be glad to show you how you can save on operating and maintenance costs.

**Delpark**

## PAINT SPRAY BOOTH WATER FILTERS

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*Backed by more than 40 years experience in Industrial Filtration*

**INDUSTRIAL FILTRATION COMPANY • 96 INDUSTRIAL AVE., LEBANON, IND.**

ing circulated through a 50-ton refrigerating unit which serves six anodizing tanks.

In anodizing, the action of the direct electric current produces just the opposite effect as in electroplating; it produces a 0.002 to 0.0003-in. aluminum monohydrate surface on the metal.

In the seventh tank the handles are rinsed in cold water for one minute followed by a similar rinse in cold water in tank No. 8. The latter is another tank in which racks remain until at least four are accumulated. Allowing the parts to remain in this second rinse tank gives added insurance of the removal of all acid from the porous surface of the aluminum. Incidentally all rinse tanks are the overflow type.

## Dye Solution Produces Color; Sealing the Dyed Surface

The ninth tank contains a solution of water-soluble dye which is heated to 140° F. The rinsed parts are placed in this tank to be color dyed (in this case the "color" is gold). The length of time they remain in the dye depends entirely on the color desired. First, the correct strength of the dye solution and the pH are established. Then daily checks are made and additional dye is added as needed. The standard pH is maintained by adding ammonia if the solution becomes too acid; if it becomes too alkaline, acetic acid is added.

It is necessary to "seal" the dyed film to prevent finger-printing or staining. Before being sealed, the treated aluminum pieces are rinsed in cold water in tank No. 10 for five to ten seconds; then they are immediately immersed in deionized water (heated to 212° F.) which contains .5% nickel acetate with the pH adjusted to 5.8 or slightly acid. The length of time they remain in the heavy metal seal depends upon the color. For instance, for gold they are sealed for 60 seconds; for light colors from one to two minutes; and for dark colors, five to ten minutes.

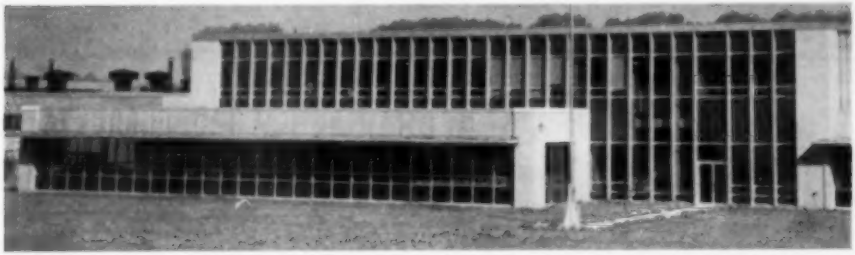
The sealed parts are rinsed for five seconds in cold water in tank No. 12 to remove any nickel acetate that may remain on the surface, so that the finish will dry without any water spots. The racked parts are then hung on a conveyor which moves past an inspection station. This station is lighted with a combination of fluorescent and incandescent lights that give out a true north daylight, which is so necessary for the detection of any variation in color.

## Background Color Enamel Is Sprayed Through Mask

The color anodized handles are transferred to a pressurized finishing room where a modified epoxy resin-base enamel is sprayed into the debossed areas of the handle to produce a color contrast background for subsequent screen processing. This enamel is sprayed through a precision metal mask as the handle is held in close contact with the mask by compressed air. Upon removal of the mask, the handle is placed on a horizontal metal belt conveyor to move through an infrared electric oven to bake the finish for three minutes at 350° F. [*Continued on page 34*]

Outdoor aluminum needs the protection of Half-Second Butyrate lacquers—

# ALUMINUM BUILDINGS, for instance!



**Clear, non-yellowing, weather-resistant coating preserves exterior of American Sterilizer Building**

Aluminum is becoming one of the most widely used metals for outdoor use. But, although aluminum withstands weathering without suffering structural damage, its surface does deteriorate. Not only does it lose its luster and develop a grayish-white oxide film, but it also corrodes and pits—and these pits collect and hold dirt and grime.

The American Sterilizer Company, world's largest manufacturer of sterilizers and related hospital equipment, has solved just such a problem on its plant and office building in Erie, Penn.

Following carefully prescribed cleaning, restoring and pretreating procedures, the finish of the exterior aluminum walls of the building has been protected against a recurrence of this deterioration with a weather-resistant Half-Second Butyrate lacquer.

This clear, tough, non-yellowing lacquer will protect the gleaming finish of the restored aluminum surface for years, requiring only occasional hosing of areas of extreme contamination. The action of the rain alone will remove the accumulation of most dirt or grime.

Aluminum products used outdoors need the kind of protection Half-Second Butyrate lacquers provide. Easy to apply, economical to use, they afford excellent protection with a single coat. Many aluminum fabricators protect their products with a clear Half-Second Butyrate coating before they leave the plant. These coatings are available from lacquer manufacturers in all parts of the country. Write us for information.

A new 15-minute, 16mm. sound color film entitled "Half-Second Butyrate—a protective coating for exterior aluminum surfaces" is available without charge for viewing by those who design in, specify or use aluminum in any way as an exterior material.

HALF SECOND BUTYRATE
an Eastman film former

**SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York City; Framingham, Mass.; Cincinnati; Cleveland; Chicago; St. Louis; Houston. West Coast: Wilson Meyer Co., San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.**

**Eastman Chemical Products, Inc.** PLEASE PRINT
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260 Madison Avenue, New York 16, N. Y. _____ DATE

**Please send film on Half-Second Butyrate to:**

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**Choosing the most profitable cleaning chemical**

**No operation in metalworking today—even the most routine—can escape the probing eye of the cost accountant. Take metal cleaning. The simplest cleaning setup is not necessarily the most economical . . . neither is the cheapest cleaning agent. Dow offers a wide variety of chemicals for the cleaning job. Each is more useful than the others in a specific type of operation. Making the right choice can mean fewer rejects on the line and more dollars in the till. Some of these chemicals are discussed in concise form for the busy reader.**

# Metal cleaning men cover all bases with Dow trichloroethylene line

In metalworking plants that aren't watching pennies these days, any old trichloroethylene in the vapor degreaser will do. But those who want the most for their money are glad they can choose the one type that suits their operation best.

And that's a choice they can easily make from the impressive array of trichloroethylene types offered by Dow. Here's the line-up, each with its individual qualifications—together as a group, covering 99% of all metalworking applications.

***NEU-TRI.*** Just released for general distribution—Dow's neutral type of trichloroethylene is an outstanding cleaner for both ferrous and nonferrous metals. Its excellent stabilizer system prevents breakdown when working with buffing, stamping and drawing compounds and other contaminants. NEU-TRI* is recommended for the broad range of industrial jobs. Its versatility makes it the best solvent for many different applications.

**Metal components ready for assembly line after degreasing with Dow Trichloroethylene.**

Like all types of Dow trichloroethylene, NEU-TRI has a low fire hazard (no flash or fire point) and is low in toxicity . . . a safe citizen. Its low boiling point (189°F.) makes for easier handling of the work after degreasing and keeps heat bills to a minimum. In fact, it takes only one-ninth the heat to boil and vaporize NEU-TRI as it does water. This means less heat input and more economical cooling.

The high vapor density of NEU-TRI helps maintain a definite vapor level and reduces the amount of solvent dragout during work transfer. Most important, the powerful cleaning ability of Dow trichloroethylene makes the most stubborn parts come clean after just one run. Cleaning line rejects are cut to the bone.

**Dow Chemicals Basic to the Metalworking Industry**

Chlorinated Solvents • Brominated Aliphatics
Alkalies • Ion Exchange Resins • Glycol Ethers
Preservatives • Hydrochloric Acid • Phenolsulfonic Acid • Ammonia • Industrial Glycols
Polyethylene Glycols • Polypropylene Glycols

***ALK-TRI.*** As the name suggests, this is the alkaline member of the family. ALK-TRI* offers a definite metal cleaning advantage. Metal cleaning men can easily determine the condition of the solvent stabilizer balance. This definite advantage allows for top performance in your metal cleaning operation.

***HI-TRI.*** Missile makers *really* play for keeps when it comes to metal cleaning. Undetected foreign matter in the business end of a rocket can raise havoc. This type of tri was developed by Dow for specific use in the missile industry. Its excellent "shock sensitivity" characteristics, freedom from residue, qualify HI-TRI* as a top-rated cold flushing agent in cleaning missile components.

*Stripper Extraordinary*

### *METHYLENE CHLORIDE*

Formulations based on Dow methylene chloride lay metal bare in short order, rapidly stripping paints, enamels, lacquers, epoxy resins and plastic coatings. They permeate practically all coatings, swelling and lifting them right off the surface. They excel at removing plating masking lacquers and cleaning precision parts.

Dow methylene chloride performs efficiently as a spray or dip, and in certain vapor degreasing applications. The list of its attributes is long and includes high solvency, low boiling point, inertness to metals, chemical stability, nonflammability and low vapor toxicity.

* * * *

***WHAT DO YOU THINK? Reading about these helpful Dow chemicals for metalworking may have suggested some ideas or questions about your own operation. If you'd like more information or have some comments, please write to:*** THE DOW CHEMICAL COMPANY, ***Chemicals Sales Dept. 762H, Midland, Mich.*** *TRADEMARK

*YOU CAN DEPEND ON*

DOW

## METALWORKING MEMO:

## *4 more noteworthy Dow chemicals*

### S. O. S.

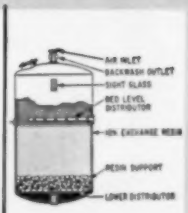
Many formulators are now adding Dow Sodium Orthosilicate to their product lines for consistently high-power metal cleaning. Contact Dow for formulators using Dow S.O.S.

### Perchloro-ethylene

A top notch vapor degreasing solvent for cleaning prior to plating. High boiling point means longer solvent action before part reaches condensate temperature.

### Ion Exchange Resins

In pickling and plating plant operations, Dowex® resins keep valuable metal from going down the drain . . . reduce water pollution problems, too.



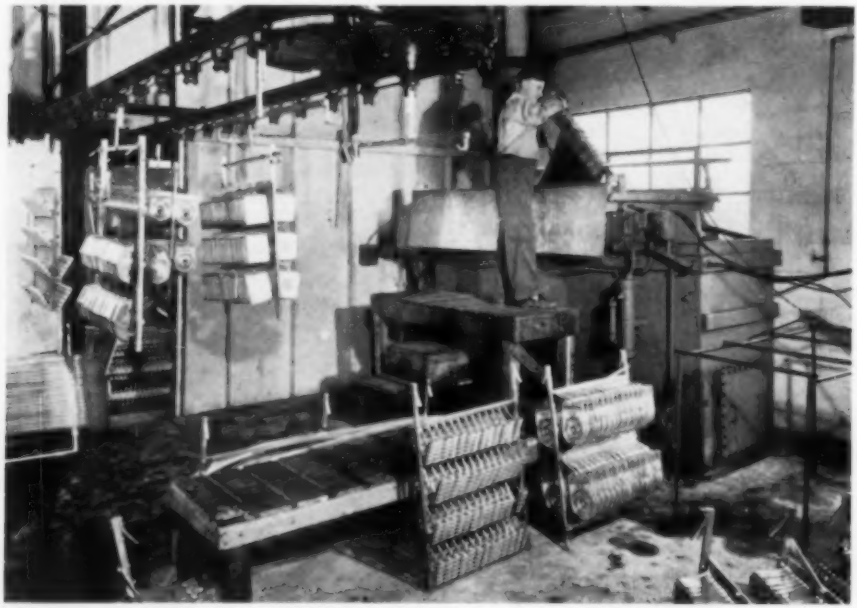

### Caustic Soda

Complete handbook on NaOH. Facts, figures and tables on properties, uses, handling, storage, safety measures. Send postcard for your copy.

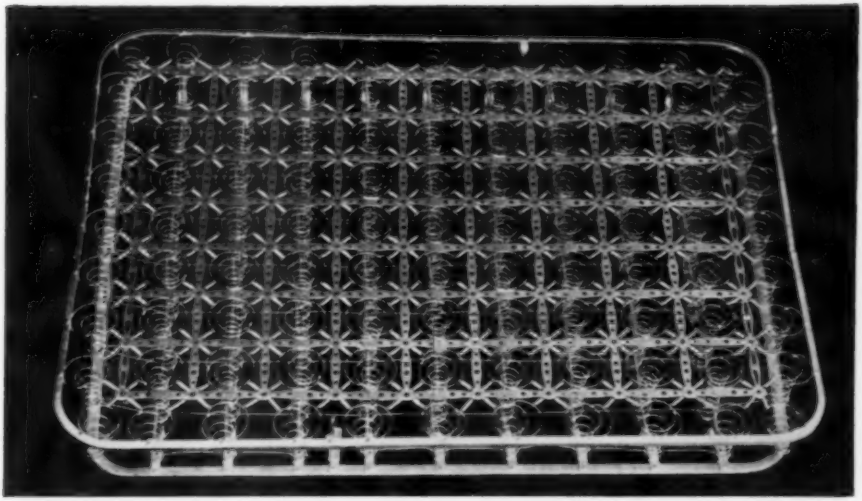
The handles cool for six minutes as they proceed to the screen process machine. This machine has a work holder which positively positions the handle under the screen. The handle is held in correct contact with the screen by compressed air as the operator squeegees the name on the debossed background. The screen is made of stainless steel wire as fine as silk, and is mounted in a metal frame. The handles go back through the oven to dry the processed color. They are then ready to be wrapped and packed for shipment.

For color anodizing parts which will be exposed to the elements, such as emblems used on the outside of automobiles, the procedure is much the same as just described, except that these parts remain in the anodizing tank for 30 minutes to produce a heavier anodic film. Also, the parts are dyed with a mineral pigment dye—a water-soluble chemical that is different from the dye used on name plates and handles to be used indoors. Because of the heavier anodic film, the sealing in boiling water requires a minimum of 15 minutes.

Those parts that are to be used indoors, and which require only an anodized finish, follow the same procedure as the handles except on a slightly shorter time cycle—and the dye tank treatment is omitted. Anodized parts that are intended for use outdoors follow the same



Racked parts arrive at vapor degreaser by way of overhead cable conveyor. All parts are degreased before anodizing or electropolishing begins. Photo, courtesy E. W. Buschman Co.



# U. S. ALUMINUM BAKING ENAMEL PROVED IN FOUR-YEAR TEST ON NARCO BED SPRINGS

Talk with the people at National Rose Company, Memphis, Tenn., about U. S. Aluminum Baking Enamel. They've been using it exclusively for four years to finish and protect their famous line of NARCO bed springs.

National Rose reports outstanding results. In particular: 1) brilliant smooth surface and clean appearance that sells; 2) ruggedness that makes boxing or wrapping for shipment unnecessary; and 3) rapid drying, important to the NARCO production schedule.

Made with ALCOA® Aluminum Pigment by U. S. Paint, Lacquer & Chemical Corp., St. Louis, this paint is dipped on—no degreasing or other surface preparation is necessary.

A good aluminum coating, the ideal product finish, deserves *your* test. You'll be pleased with results.

**ALCOA does not make paint,** but paint manufacturers working with ALCOA Aluminum Pigments have developed a wide range of metallic finishes that are adding extra protection, building big sales for a variety of products. These durable, brilliant finishes cost no more than ordinary coatings and save money on surface preparation as well.

GET ALL THE FACTS FROM YOUR PAINT MANUFACTURER, OR WRITE ALUMINUM COMPANY OF AMERICA, PAINT SERVICE BUREAU, 1732-F ALCOA BUILDING, PITTSBURGH 19, PA.

*Look for this label when you buy aluminum paint*

**"ALCOA THEATRE"**
Exciting Adventure
Alternate Monday Evenings

PIGMENTED WITH ALCOA ALUMINUM

procedure as automobile emblems, omitting the dye tank, of course.

### Electro-polishing Stainless Steel

For electro-polishing stainless steel to produce a permanently brightened surface, the parts are racked and degreased in the trichlorethylene degreaser. Then they are dipped into a mild alkali solution for about five seconds to remove any residue from the degreaser. These parts are then suspended in the bright dip tank for three minutes. This tank contains a combination of acids including sulfuric and phosphoric.

As in the case of anodizing aluminum, the direct electric current has just the opposite effect as in plating; that is to say, the stainless steel parts are the anode or positive terminal, and the tank is the cathode, or negative terminal. The brightened parts are then double rinsed in two cold water tanks and returned to the conveyor to go through an infrared electric dry-off oven before being wrapped and packed for shipment.

---

## Roller Coating Panels For Toy Blackboards

AN INTERESTING hand-fed roller-coater application is found in the plant of N. D. Cass Co. of Alabama, at Brent, Alabama. This company uses a roller coater to spread finishing material on Masonite parts for toy blackboards. The roller coater has rubber-covered application rolls, the rubber used being of a special composition so it will not be chemically attacked by anything in the finishing material.

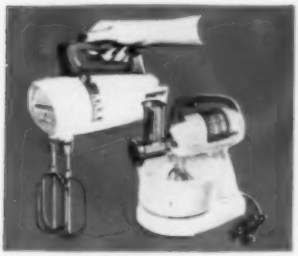
Roller coater used to paint panels for toy blackboards. Photograph courtesy of The Black Brothers Co., Inc., Mendota, Illinois.

A feature of these machines is the way in which each doctor roll is mounted close to an application roll so that the crotch between them serves as a reservoir for the coating material.

Each doctor roll has a hard chromium surface. Adjustments on the doctor rolls are calibrated to the thousandths of an inch, as on a fine tool.

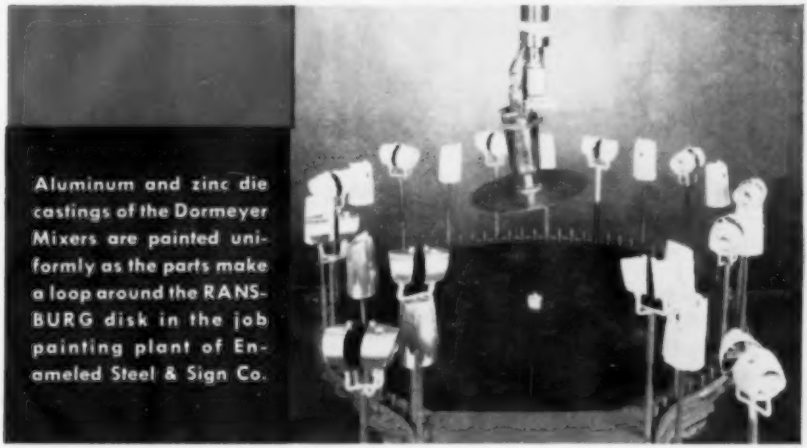
Each set of application rolls and doctor rolls are made the same length to permit the use of drip-proof end plates.

Roller coating machines may be hand-fed, hopper-fed or conveyor-fed. Sometimes, where relatively-small pieces are roller coated, it is convenient to support them in notched racks, similar to those seen in the illustration. Such racks hold all coated surfaces separate during the drying process.—*John Hyler.*



# DORMEYER MIXERS are painted with RANSBURG NO. 2 PROCESS

## . . . and high quality standards are easily maintained with Electrostatic Spray Painting



Aluminum and zinc die castings of the Dormeyer Mixers are painted uniformly as the parts make a loop around the RANSBURG disk in the job painting plant of Enameled Steel & Sign Co.

● Enameled Steel & Sign Co. is able to serve many customers like Dormeyer, for their Chicago job painting plant is equipped with modern and efficient finishing facilities for producing high quality, high volume painting.

Electrostatic spray painting has practically replaced all other methods here, for the flexibility and near 100% efficiency of the Ransburg No. 2 Process enables Enameled Steel to serve many manufacturers of a wide variety of products. And, this with a comparatively small labor crew!

Today—with Ransburg No. 2 Process—Enameled Steel is realizing more than 60% paint savings over former hand spray. Rejects have been cut to less than 1%, for the Ransburg No. 2 Process applies a uniform, high quality finish never before obtainable with old-fashioned painting methods.

THINK OF WHAT 60% PAINT SAVINGS WOULD MEAN IN YOUR OWN FINISHING DEPARTMENT

Whatever you manufacture, if your production justifies conveyorized painting, you should look into the savings and improved quality which can be yours with Ransburg Electro-Spray. Let us tell you about the complete Ransburg services, including the test painting of your products in our laboratories.

Ransburg ELECTRO-COATING CORP.
Indianapolis 7, Indiana

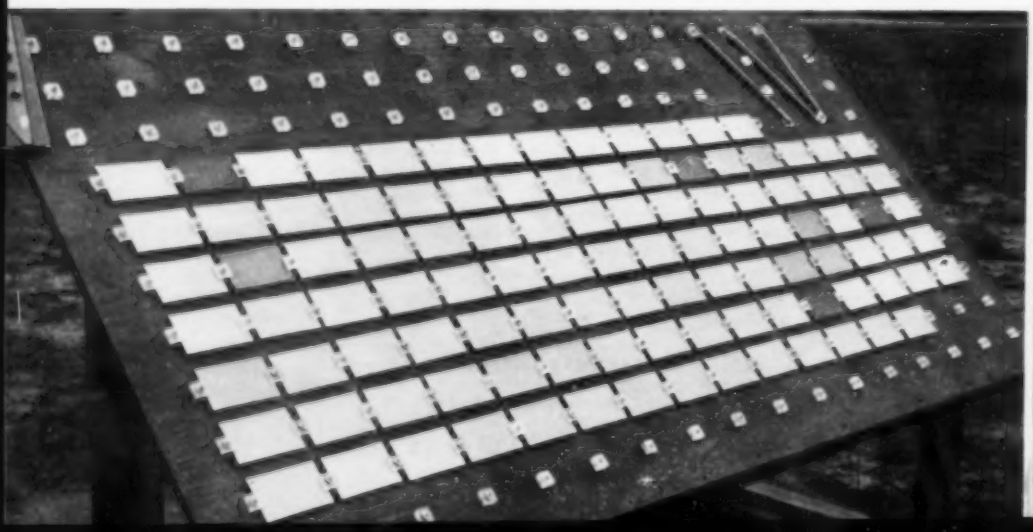
RANSBURG

**BY FRED HOWARD**
***Material and Process Engineering Supervisor***
***For Bell Helicopter Corp., Fort Worth, Texas***

# Bell Helicopter's Finish; Something Very Special

THE MANAGEMENT at Bell Helicopter Corp. believes that "eye appeal" with performance guarantee is still of primary importance in establishing business security in this competitive age. Now the company has taken still another step in this direction through modification of the latest improvements in aircraft finishes for all commercial and some military helicopters.

Outdoor exposure rack on which test panels are mounted for comparative evaluation.



Standard salt spray cabinet, showing method of mounting painted panels for salt spray exposure. Salt solution is maintained in accordance with Federal list method, Standard No. 151, Method 811. This view is in Bell's Material and Processing Laboratory.

With the rapid conversion to diester lubricants by the aircraft industry it has become evident that conventional lacquer or enamel type finishes are no longer adequate.

## Newly Developed Lacquer Has Many Desirable Features

Research under the auspices of the U. S. Navy, developed a new lacquer-type material of cellulose nitrate, containing resins which are copolymers of methyl methacrylate and other acrylic esters. This acrylic-base lacquer has excellent resistance to diester lubricants and it possesses other desirable qualities such as ease of application, drying time, appearance and resistance to weathering and abrasion.

Unfortunately the acrylic lacquer formulation, which offers the qualities required, does not have the property of adhering to present conventional primers of the zinc chromate type.

To compensate for this, a laquer-base sandwich primer was developed for use over a surface preparation of wash primer. The wash primer is an acid-base coating which imparts excellent adhesion to metal surfaces and is very receptive to overcoating with primer coatings.

Because of some inherent undesirable properties of wash primer, which include short pot life, poor stability when exposed to sunlight or weather, very little protection against corrosion, and the neces-

sary short time it may remain in production without overcoating, the use of wash primer pretreatment has not been considered by Bell as a production item except for contractual requirements.

To utilize the desired properties of these improved products, in combination with conventional materials in a manner in which commercial and military off-the-shelf items could be most economically finished, an evaluation program was conducted by Bell and the following finish system was adopted as the most practical of the superior finishes.

### Cleaning and Pre-Treatment on Aluminum, Magnesium and Steel

The well-known adage that a surface must be free from dirt, grease and other contamination before painting is a first consideration in the Bell finishing system. All aluminum surfaces to receive paint are given a chromate conversion coating or anodized. Magnesium surfaces to receive paint are given a sodium dichromate boil or chrome pickle treatment.

Low-alloy steel surfaces to be painted are normally cadmium plated. Following these chemical film or plating treatments, the metal surfaces receive one coat of zinc chromate primer which serves as a paint base coat and a shop coat for in-shop handling and fabricating. This primer replaces the wash primer application of the Navy finish system. The primer is applied as soon as practicable after the chemical treatments, and emphasis is placed on the need for these surfaces to be meticulously clean before they are primed.

### Preparation for Final Paint; Primer plus Acrylic Lacquer

When primed parts or aircraft are ready for final paint, the shop coat of zinc chromate primer is cleaned with solvent, washed thoroughly with a good soap cleaner, lightly sanded, then wiped with solvent (aliphatic naphtha) and tack ragged. Unprimed rivets, bolt heads or other surfaces are touched up with a light coat of zinc chromate primer and allowed to dry.

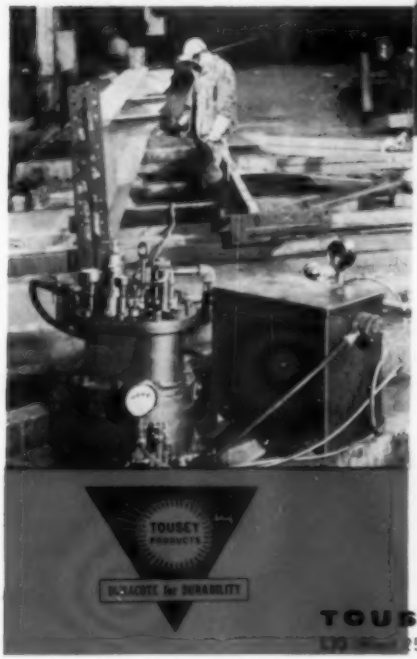
One full coat of lacquer-type primer is then applied over the zinc chromate primer and allowed to dry. (Care is exercised that all zinc chromate primed surfaces are covered by the lacquer primer.) Two coats of acrylic nitrocellulose lacquer are then applied as the final finish.

### Tape Must Not Be Applied Too Soon After Drying

Properties of the acrylic lacquer permit fast drying to the handling stage. However, the surface will not permit applications of masking tape until after 16 to 24 hours drying time. It will also present lifting tendencies if masking tape, previously applied, is not removed immediately after spraying or permitted to remain until the lacquer is fully cured before removal.

Forty-eight hours after painting, a ship finished with the system just described may be subjected to diester lubricants or many other adverse materials or conditions, with the assurance that appearance and

# TOUSEY OFFERS 2

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***For Open Air Spraying and a Quick Dry***

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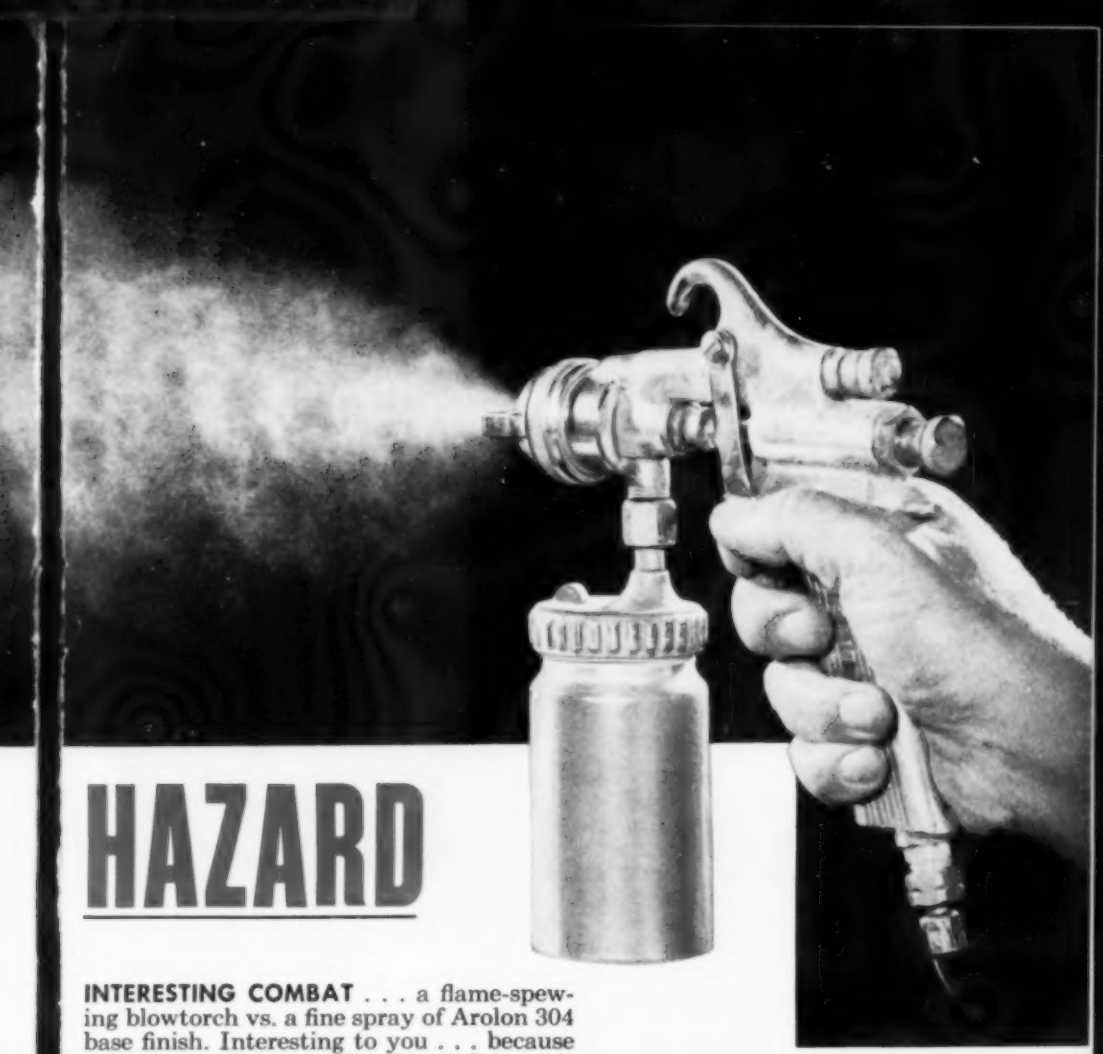
end FIRE
...with
Arolon
304



# HAZARD

**INTERESTING COMBAT** . . . a flame-spewing blowtorch vs. a fine spray of Arolon 304 base finish. Interesting to you . . . because fire now can't get to first base! Since it's water-thinned, Arolon 304 ends once and for all the fire and explosion hazards which have plagued users of conventional solvent-thinned paints. Not only is this dangerous fire menace eliminated but Arolon 304 base primers also consistently outperform conventional primers in salt spray and humidity tests. Because it is a solution, not an emulsion, Arolon 304 paints deposit a continuous film and carry as full a load of pigment as dangerous solvent type paints. Gloss, adhesion, and resistance to freeze-thaw conditions are outstanding. Want more facts? Write for bulletin 110B.

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protective qualities will be commensurate with the standards necessarily demanded of industry through changes composing our present rate of progress.

Details such as specific surface treatments for unplated low-alloy steels, titanium, stainless and other materials; thickness of paint films, cleaning materials, drying times, compatibility of materials and other such processing data have been intentionally deleted from this article, for sake of brevity, but may be secured by writing to the Material and Process Engineering Group, Bell Helicopter Corp., Post Office Box 482, Fort Worth, Texas.

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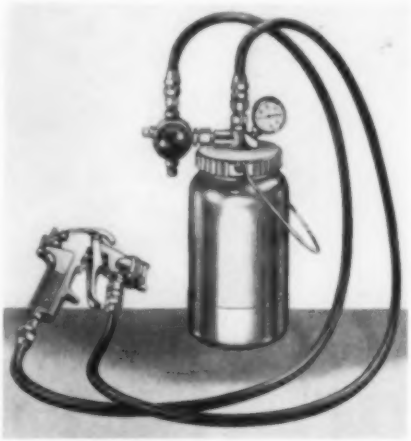
## Replaces A Cup Gun For Special Work

DO YOU USE a cup gun in your plant for special colors, short runs, laboratory testing, or possibly for maintenance painting? Did you know there is a 2-quart remote pressure-feed cup available to replace the ordinary gun cup?

This miniature portable pressure tank has a wire bail for easy carrying, or it may be strapped over the shoulder to free both of the operator's hands. The cup also has a pressure regulator and gauge for precise control of fluid pressure. Through correct fluid pressure adjustment, in relation to atomizing air, better flow-out and less orange peel are obtained, and dry finishes can be avoided.

A quality finish is possible only through the use of correct spraying technique. As every operator knows, the spray gun must always be held at right angles to the surface being coated—if he expects to get uniform coverage with the least possible overspray. This is not always possible when using a cup gun. It may be too bulky for some close places, or if the gun is tilted too far one way or the other, paint may drip out of the vent hole in the lid of the suction cup.

With the material cup connected by short hose lengths, the spray gun can be easily turned in any required position. This is a real advantage in painting large equipment and for applying special colors or perhaps short runs of products either on or off the conveyor. With the 2-quart remote cup, larger areas can be covered with less frequent refilling.



Carry the 2-quart material cup with a shoulder strap or by the attached bail. Photograph, courtesy of The DeVilbiss Co.

Maneuverability of the spray gun is always increased through lighter weight. In the ordinary cup gun, where you have the weight of the cup plus a quart of paint, you have a combination that quickly becomes rather heavy for one-hand operation; it is especially tiring on the operator's wrist. With the cup removed, all of the freedom of production line spray painting is made possible.

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# Make Your Paint Work Profitably for You

BY E. A. ZAHN
Industrial Finishes Consultant

FOR GOOD paint film performance three basic requirements are to be considered. First is adhesion of the paint to the surface being painted. The paint must stick and hold on tight. Second is high density of the dried film. The third is paint usage in high-solids form, which supplements both the adhesion and the film density.

Good adhesion of paint to any metal product or part depends first upon having those metal surfaces uniformly clean and carefully treated. But let's keep in mind that the adhesion of paint to any surface will vary according to the method of application, the application control, and the continuous uniformity of that control.

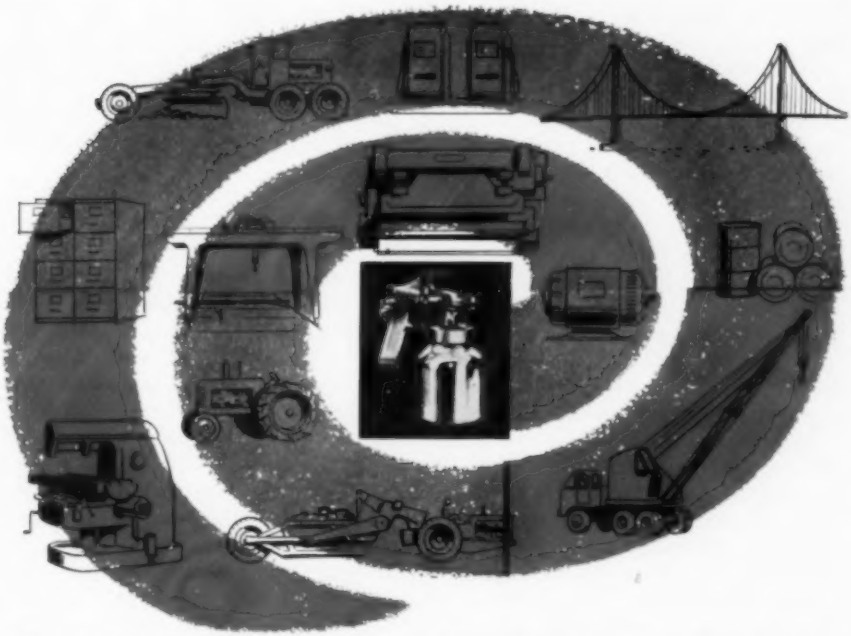
### Density of Cured Film; Use High-Solids Paint

The useful life of a coating of paint or enamel will depend upon the density of the cured film. While application methods have a great deal to do with the ultimate film density, that density is basically the choice of the formulator. The higher the density, the longer the life, from the resulting tougher film. Assuming that moisture is the great destroyer of paint films (or at least it is the activator of all destructive elements) then the control of moisture vapor transmission through a paint film will also have an important influence on the useful life of that coating.

The application of paint in high-solids form affords the use of better solvents and much less solvent. If a lot of solvent has to be squeezed into the wet film during application then it must also be taken out again when the film is cured. The quality of the solvent has a great deal to do with the ultimate adhesion of the dry film, as well as with the film's density.

### Buy Paint on Basis of Square Feet of Coverage

Every user, large and small, should re-evaluate his own situation, and then start to buy paints and enamels in terms of the square feet of painted surface he can get. Almost any paint supplier can sell you paint for a nickel a gallon less than his competitor. However, it is up to the user to decide whether he wants to paint less square feet of surface with a lot of solvent, or more square feet with less solvent. The user, for his own good and for the good of his product should stop shopping for that nickel "advan-



## Great advance in "air-dry" paint quality at no cost premium

# with new Isophthalic based resins

With Oronite's superior new raw material, Isophthalic, years of extra service can be added to your metal surface coatings. Stronger film to metal bonding, outstanding film flexibility and better gloss retention of Isophthalic based coatings means improved paint performance. The tougher Isophthalic based films also have greater abrasion resistance, hold up far better under severe weather exposure, are more resistant to chemical and industrial fumes.

DEMONSTRATION—FORMULATIONS—PROOF. Let Oronite or your resins supplier show you how Isophthalic based resins can benefit the coatings you use. Oronite field representatives can demonstrate to you the superior properties of Isophthalic resin coatings—whatever your product requirements. Just contact the Oronite office nearest you.

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tage" he thinks he is getting by purchasing a cheaper paint.

Somewhere along the line, industrial paint users must lend their influence toward changing the trend from demanding cheaper and cheaper paints. Let's begin looking for paints that have more usable solid material which will give us more square feet of coverage per gallon. A large quantity of industrial paints are sold to the smaller users who do not have paint testing laboratory facilities. They depend upon their supplier to control the uniformity of paints they buy.

Every paint supplier employs certain facilities for testing and controlling his products. Why then, shouldn't the user demand and receive a certificate of test with each shipment of material, stating that it has been tested accurately and is exactly in accordance with the approved standard specifications? It is the only form of a guarantee that the paint supplier can possibly afford to issue, since he has no control over his product after it is delivered to the user. The chances are that he will be glad to issue an honest certificate of test if it will help him keep out of the squeeze of low price competition.

In the past, it's been the custom to blame the supplier for paint failures—and, in addition to that, he was often blamed for application problems too. When the job is one where the gallon price is rated as of the highest importance, then the supplier has had very little choice except to keep quiet and sympathize with his customer. It has been shown that many application problems stem from the solvents used. The user who mixes his paint and solvent in the proportion of 50/50 has more application problems than the one whose paint takes only a 1/6 or 1/5 reduction. He has many more field failures too.

## Solvents Used Can Help or Harm Paint Performance

It is an age-old practice to try to correct every application problem by the addition of a different solvent or more solvent. Application failures have actually been found to be more closely related to the quantity of the solvent used, than to the quality of the solvent used. There are many instances where the margin of viscosity difference between the reducing solvent and the paint application mixture is only about two seconds. This can add up to only one thing: The user is attempting to build a solid film with solvent rather than with paint solids. This also represents an unwarranted waste of solvent and good paint. If or when we waste less material through mishandling, we will have taken our first big step in the right direction.

Cheap or improper solvents, having contributed nothing to a good finish film, help to increase the finishing costs further since it costs money to get rid of them in the drying or curing process. They also increase operational hazards in the painting areas, since the protection required in the area is always based on the type and quantity of solvent present.

In a number of instances it has been clearly shown that lower application viscosities can be ob-

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**COLOR DRIFT IS COSTLY!**... in product finishes, maintenance paints, packaging colors. But with the BOWLES COLOR DRIFT CONTROL SYSTEM *you can control color drift.*

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**IN PACKAGING,** uniform colors are vitally important brand identification features on all shipping cartons, labels and containers.

**The BOWLES COLOR DRIFT CONTROL SYSTEM** is TIME-PROVED, easy to use, costs little—saves much. Ask for interesting facts—TODAY.

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tained with a lesser quantity but better quality of solvents. Why else is solvent used except as a means of application? The actual percentage of non-volatile material in application reduction varies all the way from 20% or less to 60%—and sometimes on the same manufactured products too. According to this, someone must be about 40% wrong with his paint handling habits. Naturally the one who is wrong is the one who thinks he can apply solvent to obtain a healthy organic dried film in a reasonable thickness.

### Application Method Can Save or Waste Paint

The amount of spread in the percent of paint utilization by different methods of application is no secret. We practically have our own choice, as advertised, between 40% and 99%. Unfortunately though, no single application method is completely suitable for all products. However, many products are still being finished by low utilization methods, while competition in the same field enjoys high utilization.

The cost of new finishing equipment, which embodies high utilization possibilities, is falsely feared by many of the small users. A renewed investigation of new application equipment should be undertaken at once. We must remember that often the finish does sell the product, even though its cost is extremely low in comparison to what is expected from it. The new and improved high utilization methods of paint application have again shown the value of high-solids application, utilizing better but less solvent at slightly increased gallon prices.

A list of manufacturers who have benefitted by adopting new high utilization application methods is too long to repeat here. The information is available through various equipment suppliers in their respective specialized fields. The important point of advantage now is that something which is already working can be copied or improved upon much easier than it was to strike out as a pioneer and prove the merits of the first installations.

### High Speed Applications Offer Economy, Uniformity

Nearly all of the modern methods of paint application are fully automatic or nearly so. In automation, there is very little that has not already been proved possible. It is much easier and less complicated to design a machine to apply the paint

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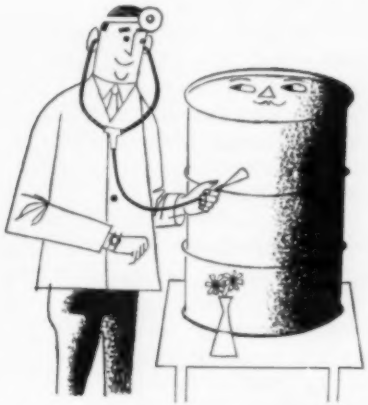
Waxes



**TIME FOR A SPRING TONIC?** Warmer weather is just ahead. It can cause poor flow-out, excessive tank loss, orange peel and cratering when the solvent evaporates too quickly. You can play safe by calling your nearby Solvents and Chemicals bulk plant. Our "Solvents Specialists" may be able to recommend one of our newly-developed solvents that will do a better job for you. Why not call today?

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to a product than it is to design a machine to package that product automatically, yet the latter is much more common than the former. The reason may be due to the unwillingness of some users to re-evaluate new developments in automatic coating application.

Some of the new application methods can produce perfectly painted surfaces at the rate of 500 lineal feet per minute, at 100% paint utilization, using high-solids materials. Many more new high speed, high utilization methods are under development and more will make their appearance in the near future.

The general trend in both large and small industries is toward automatic, high-speed, high-utilization, high-solids paint application. As these developments progress, more users will have to take advantage of them. The 3-drum a week user is no longer considered the small user, since his kind represents more than 50% of the total industrial paint business.

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## Commercial Filters Corp. Buys Industrial Filtration Co.

Commercial Filters Corp., a subsidiary of Ogden Corp., has acquired the Industrial Filtration Co., manufacturer of Delpark Filters.

Robert L. Fielding, president of Commercial Filters, announced that Delpark will operate as a part of Indiana Commercial Filters Corp., with headquarters in Lebanon, Indiana. He stated that acquisition of Delpark broadens the Commercial Filters line which provides micronic filtration for practically all industrial fluids.

Commercial Filters products now include Fulflo, CFC and Delpark Filters. Delpark products are primarily for the filtration of various industrial oils; also paint spray booth water.

## Lowe Bros. Sales Meeting

More than a dozen industrial finishes representatives of the Lowe Brothers Co. gathered at the firm's Dayton, Ohio, headquarters May 1 for a 2-day series of sales conferences which lasted through the following week.

Purpose of the meetings, said E. F. Teyber, industrial division manager, was to introduce Nobility, Sheltercote, Armadello, Eponal and Zinoxide. All are new industrial and protective coatings.

Theme for the sessions was "Finishes for the Future."

J. B. Woods, sales manager, and R. A. Drerup, office manager, assisted Teyber in conducting the meetings.

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## The Mearl Corporation's 25th Anniversary

The Mearl Corp., Ossining, N. Y., producers of natural and synthetic pearl essence, passed its 25th Milestone of progress in May of this year.

Harry E. Mattin

Harry E. Mattin, founder and president, started 25 years ago with two other people, these three comprising the entire organization. Mearl has grown, but its research laboratory has grown faster. Mearl now employs 40 people in its laboratory including a large number of Ph.Ds.

The company developed a synthetic pearl essence called "Nacromer" which now exceeds natural pearl essence in volume. It has almost displaced the use of natural pearl essence in the finishing and plastic industries. Mearl is the largest producer in the world of synthetic pearl essence, which has a greater brilliance than the natural essence.

At its Eastport, Maine, plant the company processes pearl essence from fish scales. In addition to plants at Eastport, Me., and Peekskill, N. Y., Mearl operates a plant in Roselle Park, N. J., which manufactures Mearlfoam. The company also has offices in London, Frankfort, Amsterdam, Paris, Milan and Osaka, and has representation in practically every country in the world.

UNICHROME

# COATING 6400

**Rich texture of morocco leather in a sprayed vinyl finish . . .**

This extraordinary finish is hard enough for high mar-resistance, yet is flexible and chip-proof. Sprayed, it applies easily to complicated shapes . . . unlike embossed vinyl laminates with their cementing and seams.

Film thickness ranges from 8 to 40 mils. Outlasts ordinary textured enamels by 10 to 1 . . . withstands corrosives. Ideal finish for quality products. Send for bulletin.

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# "Our finishing output up 30%, quality improved-costs cut..."

***says Mr. E. A. Nelson, General Manager, Imperial Lighting Products Company.***

**THE PROBLEM:** To improve the finishing operation for aluminum light fixture parts. Production was continuous but composed of relatively short runs for varying shapes and sizes.

**THE SOLUTION:** A Binks semi-automatic spindle spraying machine. Rotating vertical spindles, mounted on a conveyor, spin the parts to be finished. As the parts pass the operator he coats them quickly and uniformly using a manually operated Binks Model 18 spray gun. The spindles are spaced to accommodate large parts on alternate spindles or smaller parts on every spindle.

**THE RESULTS:** So gratifying, according to Mr. Nelson, that a second Binks semi-automatic spindle machine was installed. Both machines have more than paid for themselves. A third, completely automatic, machine has been ordered for production-rate finishing of small parts.

- Automatic parts handling speeds production
- Finish is uniform
- Material waste minimized
- Rejects reduced

**Free analysis and engineering help:** If you would like to know what production rates or costs you could obtain with Binks semi-automatic or automatic spraying machines, Binks research department will run actual test on *your* products and supply you with a detailed report. Just call your nearest Binks Branch Office or write us direct.

General view of the semi-automatic machines.

Faster finishing of higher quality is made possible by this Binks installation at Imperial Lighting Products Company, Latrobe, Penn.

***Ask about our spray painting school. Open to all...***
***NO TUITION...covers all phases***

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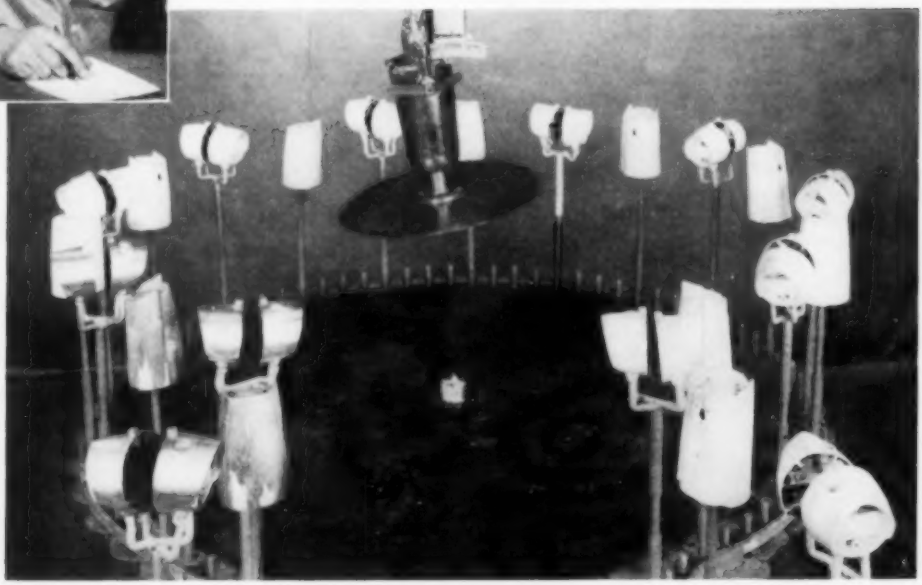
# Job Shop Painting With Electrostatic Spray

**By Peter T. Spera, Plant Superintendent**



Aluminum and zinc die castings are painted uniformly as the spindle conveyor makes a loop around the No. 2 Process disc atomizer. The company is realizing more than 60% paint saving over former hand spray. Quality of the work is improved and rejects have been cut to less than 1%. Photograph, courtesy of Ransburg Electro-Coating Corp.

YOU'D NEVER know from our firm name that our business is job painting. Enameled Steel & Sign Co. (Chicago, Ill.) was founded in 1901 and, as the name indicated, our business then was painted signs.

We went out of the sign business during the second World War when we went into high volume painting on such war items as fuse cavities, shell noses, regulator parts, etc. Following the war, we became strictly a commercial job painting plant and as such we have continued ever since.

Only with modern electrostatic spray painting units, various types of conveyors, ample oven facilities, and high labor efficiency are we able to stay in today's commercial, high production painting picture.

***We paint a variety of products with electrostatic equipment—plus conveyors and baking ovens — because it saves us time and money on quality painting of uniform thickness and smoothness.***

We recognized early the value of electrostatic spray painting and were one of the first licensees of the Ransburg No. 1 Process. Years ago we replaced automatic guns with the No. 1 Process and achieved real savings in both material and labor. Much less setup time is required with electrostatic. We don't have the down time we used to have, and smaller crews are required with electrostatic.

In a job shop operation like ours, labor represents 40% of our sales dollar, and the material represents another 20%. Naturally, any appreciable savings in these classifications is important to us.

On one job, for instance—a vacuum cleaner fork job—we saved 80% of the paint when we switched from hand spray to electrostatic.

Recently we had occasion to make a comparison of paint mileage on a

This spindle conveyor is moving from left to right. The man at the right is loading the conveyor with aluminum siding corners. The pieces move along into the painting room where they are painted with a No. 2 Process disc atomizer. From the paint room, the line moves through an infrared oven and returns to the unloading station where women remove painted corners from the fixture and pack them. Capacity of setup, 20,000 units per 8-hour shift.

vacuum cleaner housing job. Originally, we were to turn out only a few on a limited scale, so we painted them by hand. The job lingered on, as the company was undecided about putting in its own finishing department. After two months, we switched to electrostatic; and, where we formerly painted 220 housings per five gallons of paint by hand spray, we got 500 housings with the same amount of paint by the No. 2 Process.

### Savings and Conveniences; Flexibility and Adaptability

Generally speaking, we realized 30% paint savings when hand spray was replaced with the No. 1 Process of electrostatic painting in our plant. The No. 2 Process, with reciprocating disc, gives us a 60% saving over hand spraying.

The No. 2 Process with either stationary or reciprocating disc, is ideally suited to our high production painting. Because the No. 2 Process uses no compressed air, light parts to be painted can be simply held or placed in position on the conveyor. Lightweight items, such as the radio speaker grills which we are painting now, would flop around, and certainly couldn't be treated as we do if we were spraying with compressed air.

Flexibility and adaptability of the No. 2 Process makes it easy for us to switch from one job to another. That's important to us for in a job shop operation we may run a dozen different customers' jobs in one 8-hour shift. That involves running parts and products of various sizes and shapes.

A wide variety of equipment enables us to put the right job on the right line for maximum efficiency. We have 12 electrostatic units capable of handling about any type of paint job. Presently we have five gas and nine infrared electric ovens of various sizes.

It's somewhat unusual, but we have three conveyors tied into one of the gas-fired ovens. The flat-bed conveyor goes through the center, and spindle conveyors go through in the upper and lower sections. The bulk of our painting is handled very efficiently on spindle-type or flat-bed conveyors.

### Spindle Type and Flat Bed Conveyors Are Used

On the spindle-type conveyor, parts to be painted can be positioned accurately, singly or in clusters, to give maximum painting efficiency. Pieces with a broad flat shape are painted with the disc well above the work, which allows the paint to "float" over the parts. Excellent build-up is achieved in this way.

The work holders are ridged to prevent the parts from swinging against each other as they move along the line. In most instances, we get a more uniform coating when individual parts are rotated on a single spindle. However, on some jobs, we group or cluster the parts on a work holder without loss in efficiency or quality.

The flat-bed type conveyor is ideal for jobs requiring coating on one side only. This conveyor, using cables, permits fast loading and unloading, with resulting low labor

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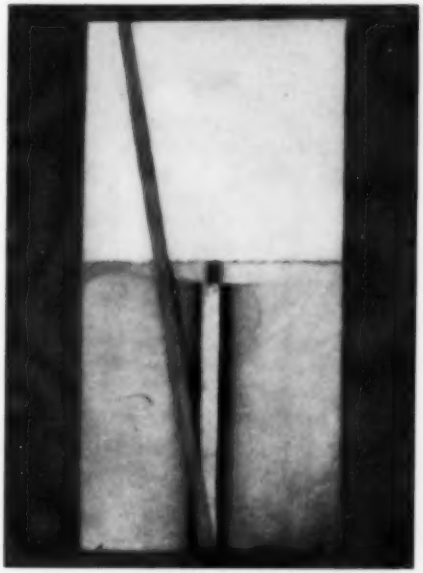

Actual Unretouched Photo

QUALITY THAT SPEAKS FOR ITSELF—The upper half of the above silver plate was finished with Nikolas 2105 Clear Lacquer; the lower half with competitive recommended clear silver lacquer. A rubber band was placed over the two finishes and in two weeks the free sulphur had penetrated the competitive material with the above results.

The same results can be expected when testing No. 2105 Clear Lacquer for Hardness, Mar-resistance and Discoloration from direct sunlight.

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costs. We handle a wide variety of sizes on this equipment. The painting of relatively flat work in horizontal position, we find, permits the use of slower solvents, and smooth, uniform finishes are easily obtained.

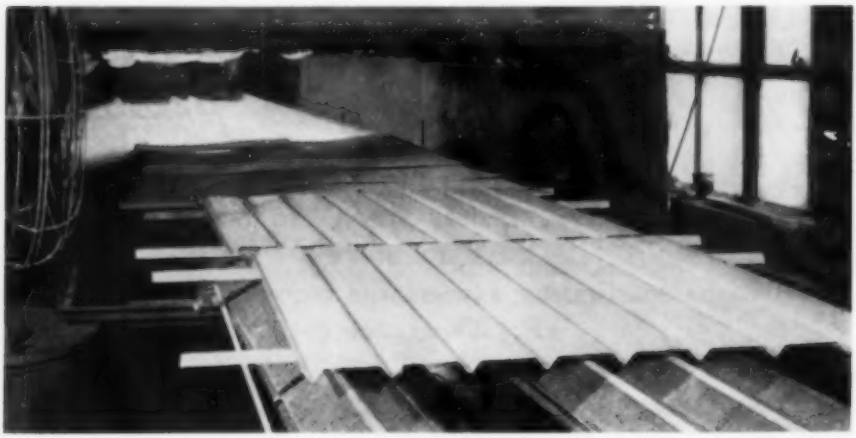
### A Few Typical Items We Have Painted

We paint a wide variety of items. For instance, we paint a portable drill for Skil Corporation. There are four parts of aluminum die castings involved on the job. With a small working crew, we can turn out 14,000 pieces, or enough for 3500 complete sets in a day. This one is handled on a spindle conveyor, making a loop around the No. 2 Process disc.

Disproving a popular belief, we have found perforated metal parts and products to be a natural for electrostatic painting. When holes are small, there's much less chance of closing the openings with electrostatic painting. An example of this is a wrap-around-screen for a tape recorder which we are painting for Revere Camera. Approximately 35% of the screen is open area with 1/16-in. perforations. We apply a prime coat and a finish coat on our flat-bed conveyor line, and are getting a good coating without clogging the openings.

We have been painting a lot of acoustical material too. The coating here has to be extremely uniform. When it's not, an unsightly condition results when the pieces are installed. It's a trouble-free operation with the No. 2 Process and the flat-bed conveyor. Most of this material is run in squares about 2-ft. in size. However, we have run the material in lengths up to 24-ft.

A new item for us is a tapered, tubular table leg. Although most production people would probably



Accoustical metal panels coming from one of the infrared ovens, were painted electrostatically in varying lengths up to 20-ft. The color and gloss must always be the same.

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recommend painting these items grouped on an overhead line, we find it an ideal job for one of our spindle lines. With a reciprocating disc, we coat 750 pieces an hour.

We are painting several furniture pieces for Comfortline, Inc. These include a tray for their hostess cart; tubular steel legs, and the metal snack bar swivel stool, which is painted in several colors. We use an overhead conveyor which loops around the No. 2 reciprocating disc to paint these parts.

Also, we paint the Dormeyer mixer unit and the portable unit, the Dormey. We paint five parts of the conventional mixer unit. These are the die cast, zinc motor base (in two parts), the zinc arm support, steel turntable and mixer base. Each piece is uniformly coated as the parts make a loop around the reciprocating disc. We paint the Dormey aluminum housing in four colors: white, pink, turquoise and yellow. This job is also handled on a spindle line, with one housing to a fixture. Fixtures rotate as the parts loop around the electrostatic unit.

With our normal payroll of something over 100 employees, and our modern finishing setup, we can and do turn out a tremendous amount of product painting.

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*Editor's Note: The foregoing article and photographs were supplied by Ransburg Electro-Coating Corp.*

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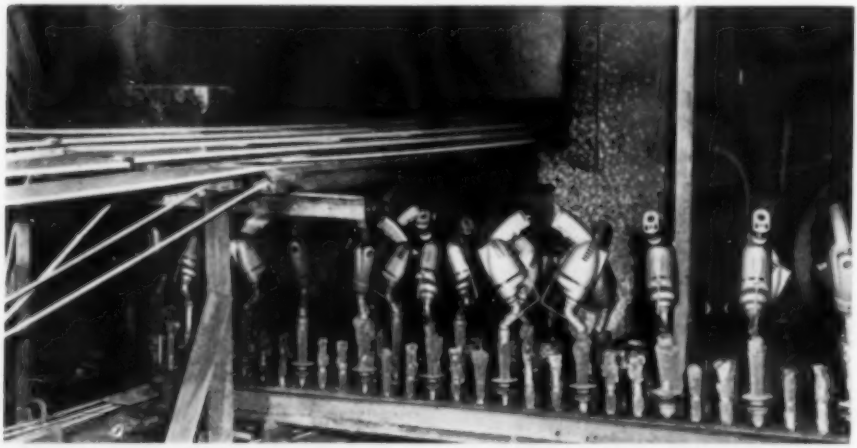
## New England Man for Adelphi

Adelphi Paint & Color Works, Inc., has just announced the appointment of Mr. Louis K. Dennis as an additional new sales representative for the company in one of its New England territories.

The appointment of Mr. Dennis brings to a total of three, the number of new representatives selected so far this year. He has a successful sales background in the paint field.



Here you see two loaded conveyors entering the same oven—but on different levels. Above, a flat-bed conveyor moving left to right, carries coated aluminum siding; below, a spindle-on-chain conveyor (moving right to left) carries painted castings for portable drills.

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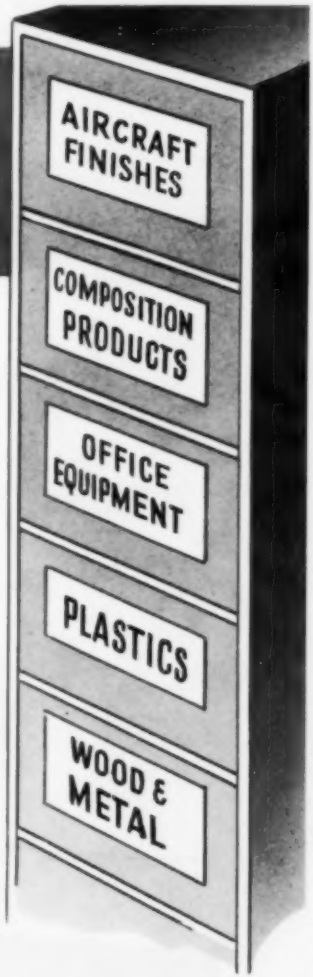


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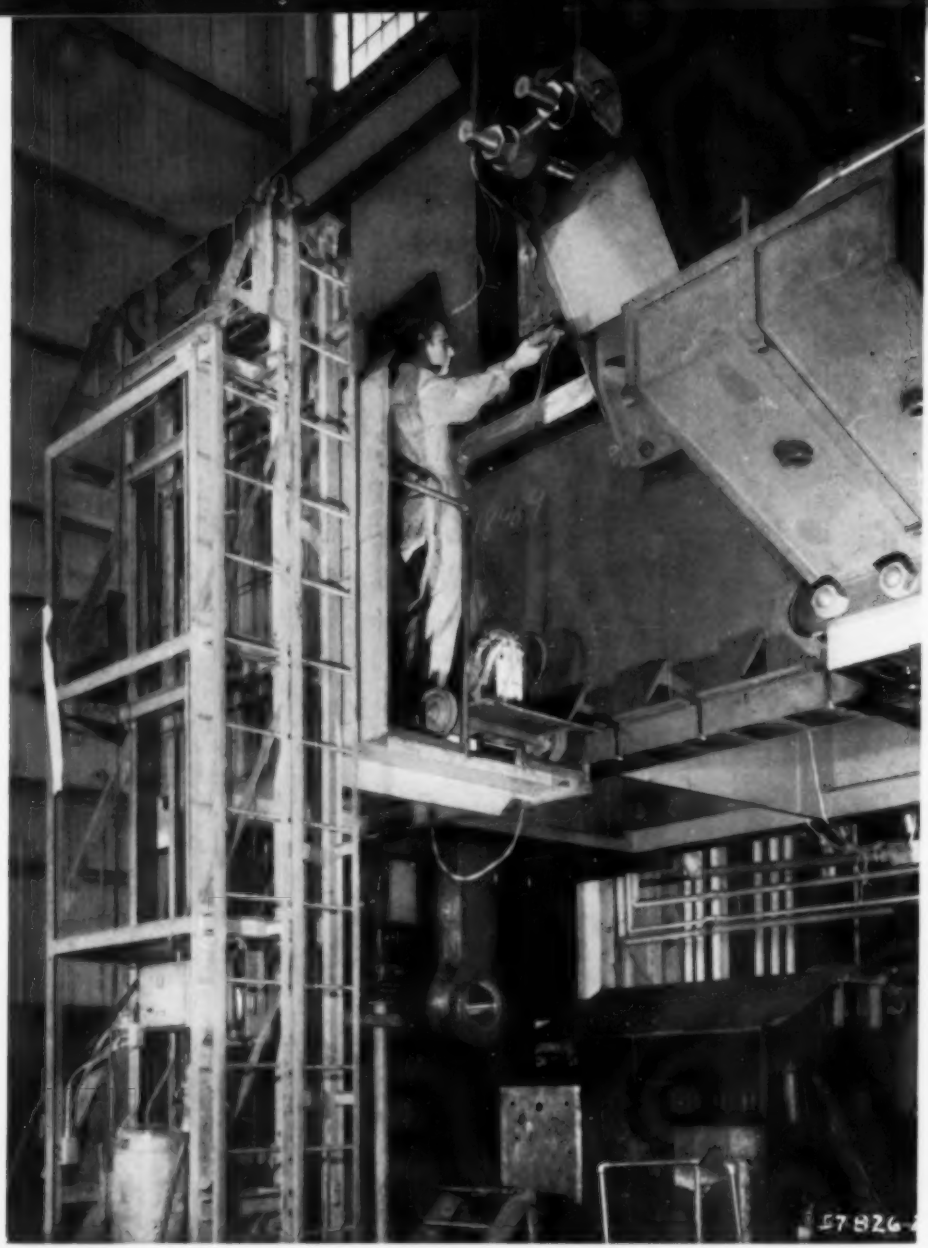

Painting a 1000-ton Clearing press by airless spray gives a smooth flowing high-solids enamel finish with no overspray. The platform carries the operator and complete spray outfit; it descends at a controlled speed. Photograph, courtesy of Nordson Corporation.

# Painting 1000-Ton Presses

**By P. C. BARDIN, Associate Editor**

CLEARING MACHINE Corp., Division of U. S. Industries, Inc.,* manufactures presses of all sizes and capacities, up to several thousand tons. Let us take, for example, the 1000-ton press; it is about 45-ft. high, 18-ft. wide, 10-ft. deep and weighs 500,000-lbs. For large shop equipment, all of these presses receive an unusually good finish. They are primed, putty glazed and given a top coat of enamel.

Presses of this size must be painted in the open shop where they are assembled. Hand brushing would be out of the question; it would take too long; would be a tedious and costly operation. However, using airless spray, one operator, with the aid of an electrically operated elevator scaffold, can paint one of these presses in a few hours.

### Airless Spray; No Overspray; Continuous Paint Circulation

Spraying paint by the airless method onto relatively large flat surfaces, there is little if any overspray. As a consequence, floor operations, even welding, can proceed near the press being painted; it doesn't interfere with other workmen and it doesn't cause a fire hazard. Two portable airless spray units are used, one for primer and the other for the top coat enamel.

*6201 W. 63rd St., Chicago 38, Ill.

The airless spray unit includes a pump driven by an air powered reciprocating motor with special valving for the required sequential operation of the two pump pistons. This assures an adequate and constant paint flow at pressures up to 600-lbs. per square inch, regardless of the load. This pump draws paint directly from the drum and forces it through a paint heater which is thermostatically controlled at whatever temperature is desired, up to 220° F. Then it flows through the material hose to the airless spray.

The spray gun has a carbide nozzle to reduce wear from abrasive pigments in the primer and top coat enamel. There are really two material hoses, one to feed paint to the spray gun and the other a return line to the pump, so the paint circulates even when the gun is shut off. This hose arrangement allows a constant circulation of paint from the pump through the paint heater to the gun and back to the pump. As a result paint pigments are prevented from settling or hardening in any part of the system.

Airless spraying is particularly effective for intermittent painting. When painting operations are to be stopped for several hours, the paint heater is turned off and only the pump operates to keep paint circulating in the system. The pump and paint heater are mounted on a dolly for easy portability. [*To 68*]

The paint is atomized by hydraulic pressure aided by vaporization of some solvents in the paint as it leaves the spray gun. Viscosity of the paint is reduced by heat. This heat would cause the solvents to boil if they were not under pressure. As the pressure is released at the gun, a portion of the solvents do vaporize, thus completing atomization of the paint.

**Shot Blast Treatment; Prime Coat; Putty Glaze**

The sections of these presses are cleaned and surface conditioned by shot blasting. This surface treatment removes scale and contamination and provides a surface to which paint will adhere perfectly. All cleaned surfaces are given a spray coat of air-drying red oxide primer. The material hoses for this operation are 50-ft. long, therefore no elevator scaffold is needed for priming the press sections. The primer is under pressure of 550-lbs. per square inch, and the paint heater is thermostatically controlled at 180° F. Temperature of the primer at the gun is approximately 160° F.

After the primer coat has air dried thoroughly, all rough and pitted areas are putty glazed. The putty is worked into the surface and smoothed out with a knife. This glazing is allowed to air dry overnight; then the glazed areas are given a coat of white shellac which serves as a sealer coat.

**Assembled; Washed; Masked**

Each press is completely assembled on the floor for inspection and testing. Then the entire surface is washed with solvent to remove all traces of oil, grease and finger marks. Next, all identification and instruction plates and all machined parts are masked with masking tape, or kraft paper held firmly in place with tape.

The airless spray unit used for putting on the top coat enamel is placed on the platform of an electrically-operated elevator scaffold. Starting at the top, the operator sprays one side of the press as the platform slowly descends. The operator can control the speed of descent, or stop the platform at any point. The other three sides are coated in the same way.

Except in cases where the customer specifies a special color, these presses are coated outside with either green or tool gray enamel. All interior compartments are painted white.

All of the enamels used are air-drying alkyd-resin base synthetics, formulated for heating to 180° F. On the top coat enamel a pressure of 500-lbs. per square inch is maintained. This air drying enamel will dry to touch in about 15 minutes, and it will be dry to handle in about two hours.

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## Cable-Way Overhead Conveyors

The Conveyor Division of The American MonoRail Co. has published a new 44-page Catalog CDA describing the American "Cable-Way" overhead conveyor. Features of the "Cable-Way" are low-cost, ease of installation, quiet operation and long life.

The catalog contains 10 pages of installation photos. Also illustrated are all of the components of the "Cable-Way" system. Write for Catalog CDA, Conveyor Division, The American MonoRail Co., Fourth & Franklin St., Tipp City, Ohio.

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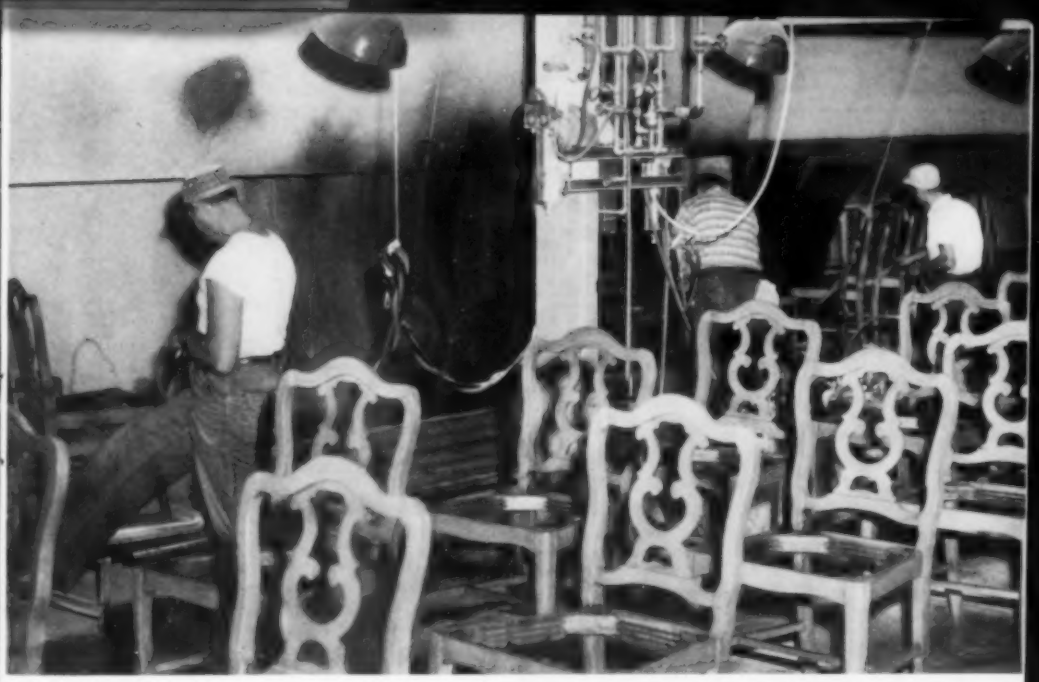
# Finishing
# DINING ROOM CHAIRS

***By D. U. McGuire, General Superintendent***
Blowing Rock Furniture Industries

ORDINARILY the sanding of wood surfaces is not included in finishing operations. It is usually considered as a surface preparation or smoothing operation that takes place before any finishing begins. Proper sanding is what you might term "the foundation of the finish" insofar as wood parts and products are concerned. This applies especially to chairs because, in the cutting of solid wood legs and backs to shape, varying degrees of end wood grain are exposed. Unless these surfaces are polish sanded, a quality finish is impossible.

In our establishment much em-

Hand rubbing and polishing finished chairs. Notice the cushioned work tables or benches.



Here you see chairs going through the shading and sealer booth in background, moving from right to left. Chairs in foreground are in non-powered area, air drying after having received a sealer coat. Note paint heater on right side of column and hot water jacketed material hose to gun used by operator at left. Photograph courtesy Palmer-Bee Company.

phasis is placed on sanding all wood surfaces before and after chairs are assembled. Shaped parts, such as legs, are sanded on "pump" sanders* with No. 4/0 garnet cloth. The drums of these sanders (rubber sides) are inflated just enough to produce a semi-rigid abrasive surface, yet they are soft enough to permit retention of the original shape of the piece. Flat pieces, such as scroll-cut backs are first sanded on a power feed belt sander with No. 4/0 garnet cloth. This machine has a 48-in. wide belt which operates over two drum pulleys and over a cushioned pad under the bed of the machine. Stock is propelled through the machine by means of two rubber-covered feed rollers and an endless, corrugated rubber belt. The sanding surface is below; flexible feeding apparatus is above. The scrolled edges of the back are then sanded on a 1-in. wide vertical sand belt.

After the chairs are assembled all surfaces are thoroughly hand sanded with No. 4/0 garnet paper. Just before they enter the finishing room they are inspected and touch-up sanding is done at this station.

The finishing room is pressurized by bringing in 100,000-cu. ft. of filtered air per minute, while

*Pneumatic (air-inflated) small drum sanders which have flexible sides so the abrasive surface will flex and conform to the shape of the piece being sanded.

fans in the six spray booths exhaust some 85,000-cu. ft. of air per minute. This provides an excess of about 15,000-cu. ft. per minute of filtered air in the finishing room which is ample to keep out all dust and flying particles. This arrangement has helped out immensely in obtaining a quality finish on chairs.

The conveyor is a horizontal pallet type, 16-in. above the floor. It has a rigid metal channel track on which *swivel rollers mounted on the under side of the pallets travel, except at spray stations* and at the entrance and exit to non-powered areas. This makes for positive, smooth travel.

At each spray station the swivel rollers under the pallets bear on a steel plate to permit the pallet to be revolved so that the chairs can be easily sprayed on all sides.

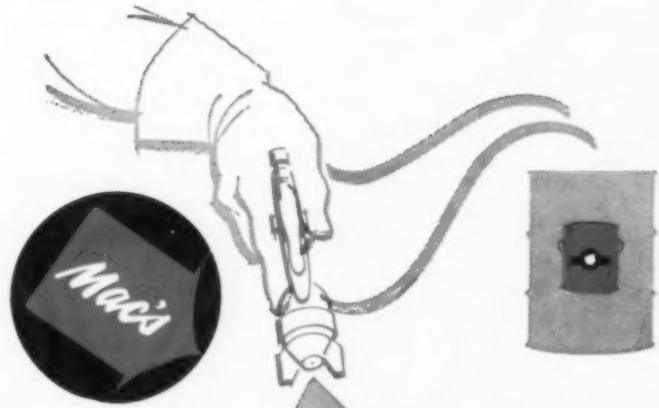
Sanding shaped chair legs on pneumatic drum sander. A sleeve of abrasive paper is slipped over the rubber drum; then the drum is inflated with just enough air to give a flexible, yielding abrasive surface which easily conforms to the shape of leg.

Here is the fireproof central supply room from which sealer and lacquer are pumped from drums into the circulating system.

There are eight non-powered areas outside the force-dry ovens and, of course, no power is used inside the ovens. In these non-powered areas the pallets are positioned crosswise and each pallet is advanced for a distance equal to the width of a pallet every time another pallet enters one of these areas. Non-powered areas are used to air dry coatings or for cooling after the chairs leave the drying ovens (see view in drying oven).

## Materials Supplied Through Circulating System

Wash coat material, lacquer sealer and top coat lacquer are supplied to the various spray booths through a paint circulating system from a central supply room. In the central mixing supply room

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These are ideal lacquers for use where a satin sheen finish with a smooth, silky feel is desired, without requiring a costly rubbing operation.

Their intrinsic and economical values are fully appreciated when used in place of the regular semi-flat lacquers, to produce the much desired satin, velvety finish.

Mac's Satin Finish Wooling Lacquers, if steel wooled only, or if steel wooled with wax using 3/0 or 4/0 steel wool, will produce a very smooth, silky, and scratchless finish that feels more silky than the regular satin finish lacquers. The steel wooling process is inexpensive and easily done.

Mac's Satin Finish Wooling Lacquers are made in different sheens which may be a flat comparable to a 20 sheen or as bright as a 75 sheen lacquer. They may also be used without steel wooling and will produce a fuller and more homogenous finish than the regular semi-flat lacquers.

Mac's Satin Finish Wooling Lacquers are available in water white light resistant, for use on white or pastel finishes, or in the regular lacquers for the darker shades such as mahogany, walnut, etc. The water white satin finish wooling lacquers are universal lacquers and may be used on both white and medium to dark finishes wherever space for storage is important.

When ordering, advise sheen desired and whether you want water white or regular satin sheen wooling lacquer.

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## *The Lawrence-McFadden Co.*

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these materials are pumped directly from the shipping drums into the pipe system under 80-lbs. pressure. The material is constantly circulated between spray guns and supply tanks.

Because of more frequent color changes, the stain, toner and shading stain are sprayed from pressure tanks in the various spray booths. It is easy to understand the necessity for color changes in these materials to take care of chairs made of walnut, mahogany, cherry, oak, tupelo and gum.

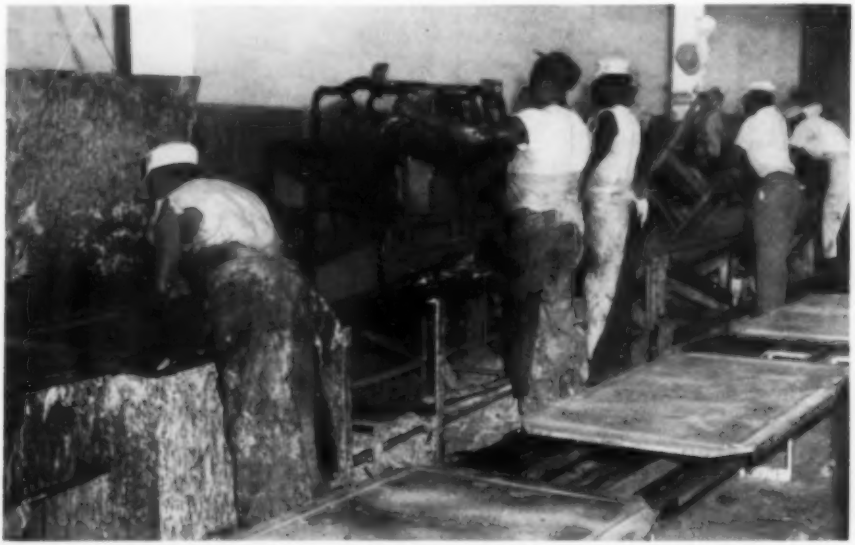
At the entrance to the finishing room two chairs are placed on each pallet. Three operators work in the first spray booth. The first one sprays an NGR stain. The second applies a light toner and the third sprays on a heavier toner. About 60 seconds of time elapses between coats. Atomizing pressure is 35-lbs., and fluid pressure 20-lbs.

Leaving the stain and toner booth the chairs enter a non-powered area to air dry for 30 minutes. Then they are lightly sanded with No. 7/0 sandpaper.

In the second spray booth chairs are wash coated with a 17% solids lacquer which is sprayed at an atomizing pressure of 35-lbs., and a fluid pressure of 20-lbs. After leaving this booth chairs enter a non-powered area to air dry for 20 minutes. The wash coat is lightly sanded with No. 7/0 sandpaper.

### Filled by Dipping; Pad in; Wipe-off; Clean; Dry

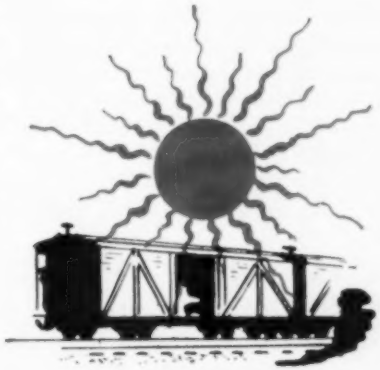
Filling is the next operation. The chairs are dipped in a big tank of



The filler line. Chairs are dipped in filler at left, then drained, padded-in, wiped off and cleaned. Then they are returned to pallets to enter the force-dry oven. Note cleanliness of pallets; also conveyor tracks and chain. Photograph courtesy of Palmer-Bee Company.

*...is printing and pad marking one of* **YOUR** *finish problems?*

Rely on Reliance



**Rel-Var will not HOT PRINT**

During the hot summer and early fall, carload and truckload shipments of furniture are subjected to elevated temperatures of 120-150°F. Inside these "rolling hot boxes," most lacquer and old fashioned varnish films will soften and print or pad mark. Rel-Var grows stronger and harder under these elevated temperatures and will not re-soften. If you have had trouble with pad marking or printing, we suggest you investigate Rel-Var, the modern synthetic finish, to solve these problems.

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ENGINEERED *Furniture Finishes*

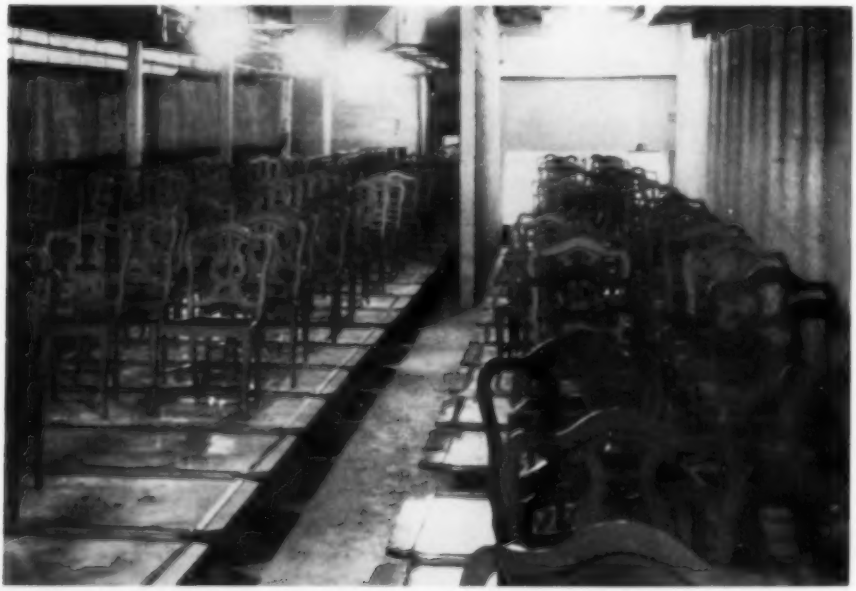
*Affiliated Factories in* **LOUISVILLE, KY. • NORTH CHICAGO, ILL. • BRIDGEPORT, CONN. • LOS ANGELES, CALIF. • HIGH POINT, N. C.**

oil-base filler. While immersed in the filler each chair is revolved to assure complete coverage. Pad-in, wipe off and cleaning operation follow. The chairs are again placed on pallets to go into the drying oven for three hours of drying at 135° F., with relative humidity of 35%.

### Shading Stain; Hot Lacquer; Sealer; Hot Top Coat

Chairs leaving the force-dry oven enter a non-powered area to cool for 20 minutes before they move into the next spray booth. During this cooling period each chair is carefully inspected. Then an oil-base shading stain is sprayed on, followed by a coat of 27% solids lacquer sealer. The lacquer sealer material passes through a hot-water type of paint heater and is applied at a temperature of 110° F.; it is sprayed with an atomizing pressure of 35-lbs. and fluid pressure of 20-lbs.

Following the application of lacquer sealer the chairs enter a non-powered area to air dry for 45 minutes. Then the sealer is sanded thoroughly with No. 7/0 sandpaper and the surfaces are blown clean with compressed air. In the top coat spray booth, chairs are sprayed with a high-gloss lacquer (42% solids), using an atomizing pressure of 35-lbs. and a fluid pressure of 20-lbs. This lacquer also passes through a hot-water type paint



Chairs on pallets positioned crosswise and close together in the drying oven. Those at right enter the oven after the filling operation; others are still drying in the center. Chairs at the extreme left are drying after having received the final coat of lacquer.

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- Low Over-all Cost

Diff. Klarifiant is used by more plants than any other water washing compound. If you are not using Diff. Klarifiant you are not using the compound that will save you the most time and money.

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heater and is applied at a temperature of 130° F. The lacquer, applied at 130° F. produces a dry film thickness equal to two coats of ordinary lacquer applied cold.

Following application of the top coat lacquer, chairs are moved into a non-powered area to flash and air dry 45 minutes before they enter the force-dry oven. Here the top coat is dried for five hours at 140° F., with 35% relative humidity. Leaving this oven the chairs travel to cool for 20 minutes before they reach the rubbing and polishing room.

### Rubbing; Polishing; Packing

The chairs are hand rubbed. Operators use No. 300 wet-or-dry sandpaper lubricated with a special rubbing oil which requires no naphtha or mineral spirits added. After the oil-sanding the chairs are rubbed with No. 4/0 steelwool dipped in wax. Finally the surfaces are cleaned with a water-soluable polish, and polished with a soft dry cloth. Final inspection is made before the chairs are transferred to the up-fitters for the installation of glides, ferrules, etc., and then to the packing department.

---

### *Binks Mfg. Co. Appointments*

Earl P. Sullivan, Wallace W. Denhoff and George Knetl have been promoted to new posts at the Binks Mfg. Co., Burke B. Roche, president of this Chicago spray painting equipment manufacturer has announced.

Mr. Sullivan has been made District Manager of the Chicago sales territory. In addition to supervising field representatives in the area, he will be responsible for a program of maintaining and expanding a strong jobber organization. Before his appointment, Mr. Sullivan had served for nearly 20 years as a sales engineer for the company.

Mr. Denhoff is now Assistant District Manager under Mr. Sullivan. He has been a Chicago sales engineer for the past five years.

Mr. Knetl, who has been with Binks for 15 years, is now Assistant Director of Engineering & Research. He will help coordinate all engineering activities and serve as liaison between his department, sales, production and the executive branches of the company.

Sullivan Denhoff Knetl

### *Glidden's New Auto & Industrial Sales-Service Lab. in Detroit*

Establishment of a new Automotive and Industrial Sales & Service Laboratory in Detroit was announced recently by The Glidden Company.

Located at 7508 Woodward Ave., the new Glidden facility is equipped to provide evaluation and testing of industrial and automotive finishes, as well as to offer demonstrations of Glidden's new emulsion finishes for industry.

Two experienced specialists in automotive finishes have been added to the Detroit staff. R. V. Hudson has been appointed technical manager of automotive finishes and Paul Colbrooke has been named automotive representative and color coordinator.

### *R. Rhodes; American Air Filter*

Richard Rhodes has been transferred from the Detroit Branch Office of American Air Filter Co., Inc., to its Home Office in Louisville, Ky., as a supervising engineer in the Unit Ventilator Products Department. Rhodes will serve the firm's Midwest Region.

Prior to his move to Louisville he spent one year in AAF's Chicago Branch Office and 5½ years in the Detroit Office.

## Lubricate Your Conveyor But Prevent Drippings

LUBRICATION of the conveyor can be a problem when it is used to carry freshly painted parts from the spray booth, dip tank or flow coater through the bake oven. If just a slight excess of oil is applied to the conveyor, it is likely to drip onto the freshly coated surface of the product. It is difficult to determine the exact amount of lubrication required to prevent serious wear and still prevent oil from dripping on the product.

One of the most difficult situations with which to cope is where the conveyor passes through a high-temperature oven. Temperatures ranging from 400° to 800° F. will cause ordinary lubricating oil to break down; such conveyors must be lubricated on each cycle.

Another case would be where the conveyor accumulates paint overspray, or where it passes through a flow coater and paint is splattered on it. In these cases the conveyor probably goes through a stripper tank and dryoff oven on each cycle. The oftener lubrication is required, the more likely oil drippage may occur.

A solution to this lubrication problem may be found in the use of molybdenum disulfide in oil to lubricate the conveyor. The heat of the bake oven or hydrogen relief oven evaporates any oil present, leaving only the metallic lubricant. No oil drips onto the surface, yet the conveyor is adequately lubricated.—*P.C.B.*


**NEW pocket-size THICKNESS GAUGE**

For flat or curved surfaces

Only $75.00

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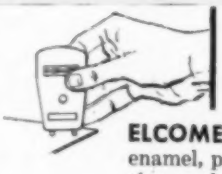

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**ELCOMETER** measures thickness of porcelain enamel, paints, platings, foils, glass, paper, plastics, and other nonmagnetic coatings quickly and accurately. Gauges flat or curved surfaces and hard-to-get-at spots easily. Needle locking device assures correct reading every time. Complete with leather case containing inner pocket for test strips. Weighs only 6 oz. Completely self-contained.

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*Problem:* High heat

# *When to recommend and Du Pont* TEFLON®

(TFE-fluorocarbon resin finishes)

When critical parts of products and equipment coating of TEFLON, they become water- self-lubricating, resistant to sticking—even

Increased production, dramatic product improvements—both are now possible from one family of Du Pont Finishes.

Du Pont TEFLON Finishes have surfaces so slick nothing can stick to them, not the strongest glues or most clinging liquids or solids. What's more, TEFLON is tough enough to resist constant abrasion, is not affected by temperatures from 390° below zero to *480° above!*

**High resistance:** These properties alone make TEFLON the most ideal release coating ever developed for plant equipment and products. But, in addition, TEFLON Finishes are 100% water-repellent and offer outstanding degrees of chemical inertness.

As if this weren't enough, TEFLON Finishes also offer several valuable electrical properties. TEFLON Wire Enamel, for example, has the greatest insulating ability of any wire coating.

**Firm bond:** When you sinter a thin coating of TEFLON to critical parts of machinery or products, the parts immediately take on all these valuable properties.

The TEFLON bonds itself to the parts in an inseparable union. What you have, in effect, is a completely new part. One with all the strength of the original plus the added properties of TEFLON.

TEFLON Finishes are available in a number of formulations for a wide variety of uses. It can be sprayed, brushed on, even dipped or flow-coated. About the only real restriction to its use is that the material to be covered resist the sintering temperature of 750°.

**Cost?** TEFLON is not cheap. But it does jobs no other material can do—at any price.

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# *how to use Finishes*

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repellent,
up to 480°.

Today, TEFLON Finishes are improving the performance of such varied items as fountain pens, extrusion dies, transformers and heat-sealing units—to name but a few. And new uses are turning up all the time, for operations of all sizes. TEFLON is just one of the family of 12,000 finish formulas from Du Pont, the first place to look for new finishes and new application methods, today's leading source for *all* types of finishes for industry.

**TEFLON and your operation:** *Learn how a* TEFLON *Finish may be of use for your particular needs. Write for Du Pont's free illustrated booklet and complete spec. sheets on* TEFLON. *No obligation. Drop a card or letter with your name and address to E. I. du Pont de Nemours & Co. (Inc.), Finishes Div., Wilmington 98, Delaware.*

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# EDITORIALS

## Your Finish Materials Cost Too Much?

★ The price of industrial finishes has gone up over the years, but not as sharply as many other items in our economy. Quietly and without too much publicity a number of things have been done in the paint industry—a very competitive industry—to lower costs.

Much of the credit goes to the industry's raw material suppliers who generally have kept prices from getting out of hand. The suppliers have introduced a number of new materials and they have improved older ones. Particularly helpful has been the introduction of various additives, such as anti-silking agents, the newer driers, anti-foaming agents, bodying agents, grinding aids, etc.

The formulator now has more opportunity to get the required quality at the best price. For example, if a cheap talc will do the job, it is available. If you need a more expensive stir-in grade to adjust the final gloss of your finish, that is available also. A point to remember is that there has been a slow trend toward better quality finishes. The coating you are using today is very likely an improvement on the one you were using 10 or 20 years ago.

The personnel in the paint industry are better trained than they were some years ago. This has contributed to overall efficiency. There has been a considerable increase in the use of labor saving machinery and an improvement in materials handling. New types of grinding equipment and mixing equipment have come into use in the last ten years. They fit in very well for some types of work.

So when you note with dismay that the price of your industrial finish has gone up, please remember that the situation could be worse. You can thank the paint industry for some price increases that never happened.—*E. Goldstein.*

---

★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those used.*

## Production Line Tests Tell You More

★ A question comes up in regard to testing a sample of a new industrial finish. How big a sample should you get? Should it be a quart, a gallon, five gallons or what? Is a quart enough?

It is possible to run mileage tests with a quart of material, but in many cases it would be more accurate to use a larger amount. Suppose you get a quart sample and the finish looks suitable. Would you then order 20 drums of it on the basis of having tested a quart? I have seen this happen. As a matter of fact it is not unknown for production amounts of a finish to be ordered without any sample at all. The customer merely sends in the order with a color chip

and a brief description of what he wants.

It would be difficult to lay down a hard fast rule for everyone to follow. If a company has been testing samples of finishing materials in a certain way for several years without any trouble, one can hardly say that it is all wrong. The proper scheme for testing a finish for application properties and mileage would depend on many factors. It has been my experience, however, that the principal reason for application troubles with a new finish is that the finish was never tested in production.

There are many possibilities for going astray when applying a finish under anything other than production conditions. A few are as follows:

1) The spray man testing the finish may be the best sprayer in the place.

2) Air temperature and dry conditions may vary as compared to those that prevail in production.

3) The substrate, whether metal, wood or other surface, may vary from piece to piece. Testing on one or two pieces may not give the full story.

4) Difficulties such as rapid settling of the finish or the strong odor of solvent may not show up in a quick test.

5) One may unconsciously "baby" the finish when testing just a small amount of it.

6) The spray gun used in testing may be quite different from the production spray gun.

7) There may be more of an overspray problem on the production line.

I repeat: Testing a sample of finish is somewhat of an individual matter. If, however, you have trouble after casually testing a quart, try the finish on the production line before ordering a large quantity. Some of your troubles may disappear.—*E. Stegemeier.*

## Excessive Overspray; How to Reduce it

All overspray is waste. When you have excessive overspray you waste material; you create undesirable working conditions for the operator; you cause waste material to collect on spray booth walls or in the exhaust stack (a fire hazard); or you blow it into the neighborhood, or make it collect in a water wash chamber thereby creating a nuisance and/or necessitating more frequent cleaning and maintenance of exhaust equipment to keep it working right.

If your overspray is caused by too high air pressure, then in addition to wasting material you waste compressed air. Compressed air costs money; every 4-cu.ft. per minute of compressed air that you can save equals 1-hp. in power energy.

In most cases overspray can be reduced. Excessive overspray from manual spraying is caused by either incorrect spraying technique or too much atomizing pressure, or both. Wrong spraying technique can be corrected.

Spray painting schools are conducted by at least two of the larger manufacturers of spray painting equipment. Instruction is free. It includes not only the correct technique of handling a spray gun, but also the care and selection of the right gun for most efficient service, the use of paint heaters—and what is of equal or even greater importance, the correct relation between air or atomizing pressure and fluid pressure to reduce overspray. Through this correct relationship it is possible to reduce physical effort on the part of the operator by getting the same results with fewer strokes of the gun.

Less experienced spray operators can easily be trained in the right way, and if the old timers will go into it with an open mind and give

modern technique a fair trial, they may find that they can increase their efficiency, do the job with less effort, and at the same time reduce finishing costs through a substantial reduction of overspray.

According to the size of the operation, one or more suitable key men could attend the spray painting school, then return to hold, first of all, a plant training course and thereafter maintain close vigilance for any detection of backsliding into old habits. Anything that can be done to increase efficiency and reduce production costs certainly deserves the endorsement of both management and the employees.

Correct technique in the use of airless spraying—both manual (with hydraulic pressure) and electrostatic (from a whirling disc or bell) reduces any possible overspray to a minimum.

## Who Does What When A Fire Starts

★ During the important minutes at the start of a fire, well-intentioned and even well-trained men may duplicate each other's efforts. And urgent tasks may be neglected in spite of available manpower and equipment.

To coordinate all facilities within the finishing department, and then to integrate them with some outside help when required, should be the responsibility of men assigned to the job well ahead of any emergency. A line of authority should be set up, so that in the absence of the person first in line, his duties will be taken over automatically and without delay by the man second on the list.

Coordination of effort may do much to determine the extent and seriousness of a fire. Listing and ranking of those in command and their instructions on how management wants them to proceed in an emergency, are things to give high priority in advance planning. Then details must be reviewed frequently to keep them up to date, and fresh in the men's minds.—*M.G.D.*

## Clean Surfaces a Must For Paint Performance

★ Over the years the importance of cleaning metal properly and thoroughly before any painting begins—this has slowly gained the recognition it deserves. The diehard who thought that thorough cleaning was a waste of time, or who blamed the paint for its failure to adhere to or dry over any unclean surface, is just about out of the picture today. No, the millenium has not been reached; there are still too many hit-or-miss operations; but an increasingly large percentage of the finishing dollar is going for *preparation of the surface before painting.*

As usual, the large mass-production industries were the first to see the light. Smaller companies are now investing in materials and equipment on a scale that a few years ago would have been considered a useless and wasteful throwing away of good money. Custom finishers have even recognized that the surfaces of parts fresh from the fabricator, plater or anodizer (apparently clean surfaces) may have finger marks that should be removed.

The two chief beneficiaries of this trend have been the same two who actually caused it—the buyer and the paint manufacturer. The public is finally demanding a finish that will give more than token service.

Everyone connected with the manufacture, selling and servicing of paint, varnish and lacquer products knows that clean surfaces are a must for satisfactory paint performance—and they have convinced most of the paint users of this.—*G. Conrad.*

# MAR-PROOF LACQUER

SCHAEFER'S Mar-Proof Lacquer is a performance-proven finish that cannot be easily marred or scratched.

It's tough—tougher than the ordinary lacquers; meets the most critical requirements of current production.

Made in either clear gloss rubbing or satin finish, it produces a splendid transparent coating of full depth on maple, walnut, gum, mahogany and other cabinet woods.

Economical; gives plenty of coverage and dries quickly. Our Mar-Proof Lacquer Sealer is recommended with it for a first-coater.

*Working samples furnished without obligation. Write for them!*

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MAR-PROOF

STANDS LOTS OF ABUSE

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## for finer furniture finishing

Write for Data Sheets on the Complete DeBurgh Conveyorized Finishing System

DeBurgh systems have the unique distinction of being **completely** flexible. They will handle many types of products at one time . . . travel vertically or horizontally . . . speed up or slow down easily. No "dead storage spots" in the DeBurgh system. Production moves through each operation on a predetermined schedule and an accurate cost control system for finishing is established that is not possible otherwise.

Profitable furniture manufacture depends on these DeBurgh advantages:

- **Save Labor** Patented features of the DeBurgh System save 50% or more in labor.
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As the French say, "That! It is magnificent!" And *magnificent* is a proper way to describe some of the outstanding finishes we have furnished to our customers. Our business is devoted to finding the best formula for a given material under a given set of conditions. To this end we have a fine laboratory and an up-to-date plant, staffed by skilled people, and backed by a wealth of experience. Can this valuable combination do something "magnificent" for you?

# LETTERS from READERS

## Popular Colors Tomorrow; Aluminum Finishes

Your article entitled, "What Colors Will be Popular," was of much interest to us. This appeared in May issue, page 129.

I would appreciate the address for obtaining this information. Color is playing a very important part in our product today and we are deeply interested in learning more about its selection.

We are also interested in any information pertaining to a finishing system for aluminum products.—*A.C. Boats.*

---

The article you refer to came from E. I. duPont deNemours & Co., Inc., Public Relations Dept., Wilmington 98, Delaware.

For more information about finishing systems for aluminum products, we are happy to refer you to the following companies, each of which has published a book on the subject: Aluminum Co. of America, 1732-D Alcoa Bldg., Pittsburgh 19, Penna.; Reynolds Metals Co., 2500 S. Third St., Louisville 1, Ky.—*Editor.*

---

## Hot Spray System

We are presently thinking of converting to a hot spray lacquer system. In a past issue you mentioned the availability of reprints of an article entitled, "Spray Problems With Hot Lacquers." If this is still available we would appreciate a copy, and any other additional information that may be of help to us, such as atomizing pressures, thinner-lacquer ratios, etc. As you can see, our lacquer spraying thus far has been quite limited. We are mainly interested in spraying furniture and wood and metal kitchen cabinets.—*H. P. Company.*

---

The reprint requested is being sent to you. We also refer you to manufacturers of hot spray equipment for further information.—*Editor.*

---

## Airless Paint Spray

Mr. Henry M. Carr's Article, "Our Two Years With Airless Paint Spray," published in the April issue of this magazine, was very interesting to me. I would appreciate it if Mr. Carr could give me some information on the type of paint materials he is using and what solvent blend he has found advisable to use.—*C. Raymond Syer (United States Steel Products).*

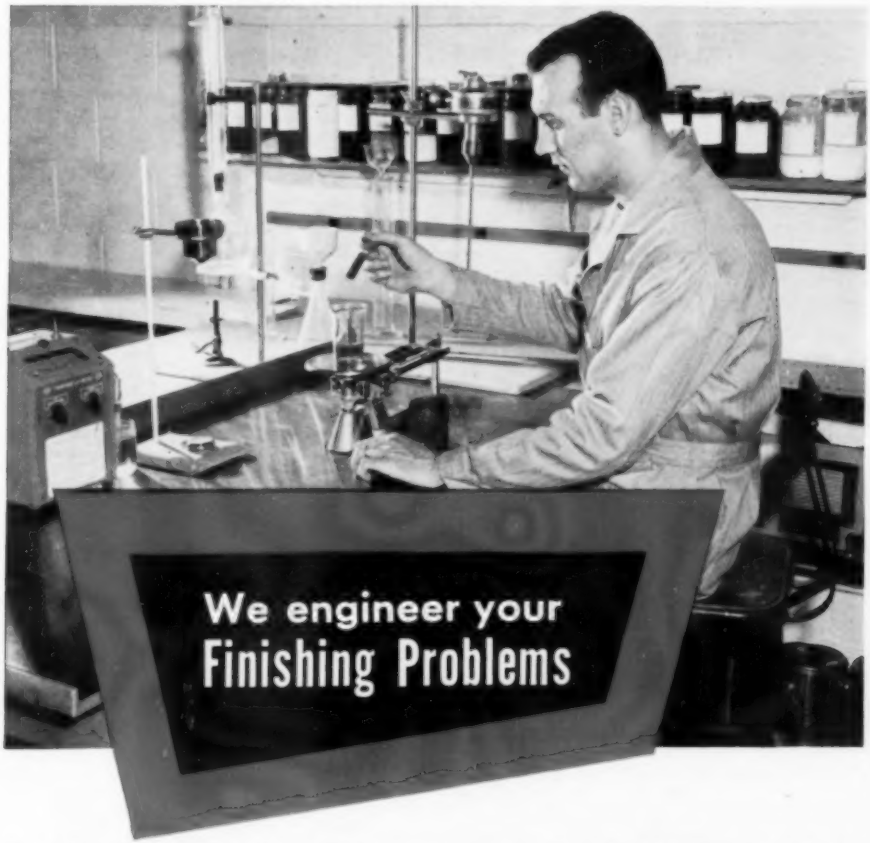
---

## Paint Over Chrome Plating

Many of our customers buy die castings with ornamental or decorative finishes. Such finishes include areas with organic finishes over the standard electro deposit of copper-nickel-chrome.

When the organic finish is applied to surface areas, other than recesses, adhesion has been a problem.

Bear in mind that costs prohibit masking areas to help keep the electro deposit off the surface that will be painted. [*Continued on page 92*]




Regardless of your needs, there is a Universal coating immediately available . . . or one that can be developed especially to meet your individual requirements. Because our business is industrial finishes . . . and their correct adaptation to rigid application, appearance and protective standards.

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This vast background of practical experience is "at your service." Write or call us for further information . . . samples . . . or technical assistance. No obligation, of course.

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We engineer your finishing problems

Your recommendation of a paint that can be furnished in colors and with adhesion properties on chrome deposit, would be appreciated.—*D. Co.*

In a letter we are giving you names and addresses of several firms which offer finishes that will stick to chromium plating.—*Editor.*

"It's no magic formula—I just use the standard, orthodox method: Stain, wash coat, filler, glaze, 21% water-white sealer, two coats of 21% water-white semi-gloss lacquer and a little sanding and patching in proper sequence—that's all!"

## Magic Words Confuse

The article, "Magic Words May Confuse You," which appears in the May issue (pages 48-49) of your magazine, is excellent.

However, allow me to inform the gentleman who wrote this that epoxy finishes are not tops. In many tests there are resins that come out ahead of epoxies.

In conclusion, let me say that while we are warned not to allow magic words to confuse us, your purpose is defeated when you overrate a particular ingredient. — *Agate Lacquer Mfg. Co.*

## Consultant Wanted

Can you put us in touch with a finishing consultant who could come in here and work with us a couple of months and help us straighten out our finishing problems? Any help that you can give us will be greatly appreciated.—*W. M. I.*

In a letter we are suggesting an individual who can help you.—*Ed.*

## Whose Non-Yellowing Lacquer?

Please refer to Feb. 1958 issue, pages 58 to 60, covering the non-yellowing lacquer which protects outside aluminum products. Would you please advise the name of the manufacturer of this product?—*M. N. F.*

It's Egyptian Lacquer Mfg. Co.—*Editor.*

## Likes Consultant's Work

I am writing to tell you I certainly feel indebted to you for recommending Mr. Zahn to me. I feel that he has saved me considerably more than I have paid him in consulting fees as he has saved me this amount alone in the cost of the machine by working closely with the manufacturer. The machine is now in operation and it is tripling my production and saving me about 20% in materials and giving me a better finish.

In the past we have spent thousands of dollars trying to build and make our own machinery and after

# PARLON-FORTIFIED ALKYD HELPS MOBILE HOMES MOVE OUT!

Mid-States Corporation had a problem. It was a big problem, because mobile homes take up space. Every extra minute spent on finishing and drying hampered other production operations.

The solution was an air-drying alkyd finish fortified with Parlon® chlorinated rubber. This fast-drying finish, supplied by Capitol Chemical Co., Chicago, gives Mid-States what they need. It dries dust-free in 15 minutes. Thirty more minutes and tape is applied to mask for the second color. In another 45 minutes the two-color finish is weather-free dry so the mobile homes can be moved outdoors for their final curing.

You, too, can have these same advantages in your own finishing operations. Simply ask your present supplier for the extra advantages of Parlon-fortified production-line finishes.

*Cellulose Products Department*

*HERCULES POWDER COMPANY*

INCORPORATED

*900 Market Street, Wilmington 99, Delaware*

CR58-3

spending this money, the machines did not work and had to be junked. I have come to the conclusion it is best to hire a good consultant; even though it costs a little at first, in the end it costs nothing. A good consultant can accomplish what you want at a savings. . . . . *C. P. Piscitelli, President of Seneca Novelty Co., Inc.*

"This is Mr. Blik. He's here to study facts and figures."

## We Finish Small Parts

In your May 1958 issue, on page 84, there is an article discussing the problems of the L. S. & W. Co. regarding the painting of small parts.

We are in a position where we can spray items of this nature, and we are wondering if you would provide us with the name of this company, or advise them of our interest and possible aid to them?—*C. T. Corp., Massillon, Ohio.*

---

In a letter we are giving you the company's name and address.—*Ed.*

## Flow Coating Equipment

We would be obligated if you would indicate sources of information on flow coating, with subsequent rotating—and firms manufacturing apparatus for this work.—*M. D., Deerlijk, Belgium.*

---

We are interested in contacting manufacturers of flow coating equipment to advise us with reference to finishing products that we manufacture, such as bed springs, cots and sleeping equipment.—*U.S.B Co.*

---

One source of information about flow coating is E. A. Zahn's book entitled, "Flow Coating," which we sell for $8.00.

Other information about flow coating can be obtained from the several manufacturers who design, build and install flow coating equipment. In a letter we are giving you the names and addresses of these companies.—*Editor.*

## Industrial Baking Enamels

Please forward to my attention two reprints of the article, "Industrial Baking Enamels," by E. G. Shur, which appeared in the January, February and March issues of Industrial Finishing.—*K. Instrument Corp.*

---

We have no reprints of Mr. E. G. Shur's article, but we are sending you three sets of tear sheets which, we hope, will serve your purpose.—*Editor.*

## "Cascading" the Paint

In April "Letters from Readers," page 96, we saw an inquiry about "Cascading" the paint, in a finishing process. If you will supply us with

## *The man from "Minnesota" was here*

**Result: a coordinated program to produce a ready-to-finish primer for revolutionary new Insulite Primed Siding**

What does it take to make a better siding? Production of new Insulite Primed Siding required a combination of new ideas, material, and years of research . . . plus a wealth of production know-how to achieve desired performance characteristics.

Requirements called for a prime coating to seal the surfaces of the siding completely . . . face, edges, ends and back. Yet, this basically "armored" surface must remain highly receptive to the finished coating . . . providing an ideal base for economical one-coat finishing.

Result of the Minnesota & Ontario Paper Co. research was a made-to-finish surface that has won the approval of builders, architects, home owners. Laboratory and field tests show the finished coating withstands years of natural weathering and extremes of applied heat, cold and moisture.

If product finishing is your problem, call in a man from "Minnesota" to put chemical science to work for you.

Minnesota PAINTS

INDUSTRIAL FINISHES DIVISION

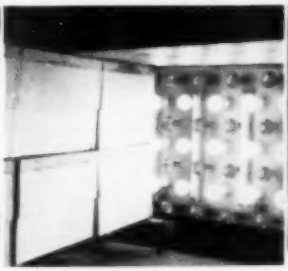
**MINNESOTA PAINTS, INC.**

1101 THIRD STREET SOUTH
MINNEAPOLIS 15, MINN. FE 2-7371

PLANTS: *Fort Wayne • Atlanta • Dallas*

In one cycle of accelerated weathering test, Insulite Primed Siding panels were subjected to hours of cold storage at 10°.

In second cycle, test panels were exposed to infrared and ultraviolet irradiation with maximum surface temperature reaching 195° F.



Flotation test shows wood sample (two coats) in foreground has blistered while Insulite Primed Siding (one coat) shows no damage.

the name of this customer, we would like to contact him regarding the process required.—*George Koch Sons, Inc.*

This came from New Idea Division of Avco Mfg. Corp., Fort Dodge, Iowa (Les Lucas, Industrial Engineering Department).—*Editor.*

"After you finish that, let's finish this."

## Tumble Finishing

In the March issue, page 90, J. S. Co. inquires regarding a tumbling process. We believe that we can provide them with the finish they are seeking. Would you please give us their name and address?—*The Bloomfield Chemical Co.*

Information supplied.—*Editor.*

## Ultrasonic Cleaning

We are interested in receiving copies or reprints of any article on Ultrasonics, as applied to Cleaning or Metal Finishing, which may have appeared in your magazine.—*C.W.Co.*

## Metal Panels to Show Sample of Finish

We would like to find a source of metal panels suitable for finishing with our product, which could be submitted to customers for sampling. We have seen a 2x6-in. metal panel with a moderate curve which enhances the appearance of the finishes.—*G. B.*

One source is Gardner Laboratory, Inc., P. O. Box 5728-1, Bethesda 14, Md.; another is given in May issue, page 112.—*Editor.*

## "Brite" Aerosol Lacquer

Several people have asked us to locate the source of the product identified only as "Brite No. 13 Aerosol Lacquer," illustrated under "Random Comment" on page 4 of the April issue of *Industrial Finishing.—N. J. Zinc Co. (New York).*

We understand this is a product of Pomar Corp., Hollydale, Calif. Perhaps others closer to you than California can also supply something similar—for example, Sprayon Products, Inc., 2071 E. 65th St., Cleveland 3.

Further information about this can be obtained from Eastman Chemical Products, Inc., 260 Madison Ave., New York 16, N. Y., as this material is based on Eastman Chemical Products' half-second butyrate.—*Editor.*

## Print Edges of Tops

We are interested in locating a small inexpensive printing machine to be used for printing the edges of tops as well as small pieces of molding.—*O.M.S.*

One is illustrated and described in the "Supplies, Materials, Equipment" section of this issue of *Industrial Finishing.—Editor.*

## Minnesota Paints, Inc. Names Advertising Manager

Mr. M. H. Laikola has been appointed advertising manager of Minnesota Paints, Inc., Minneapolis, Minn. Mr. Laikola will handle all advertising activities within the 38 state marketing area of the company.

Minnesota Paints, Inc. (est. in 1870) operates paint manufacturing plants and research laboratories at Minneapolis, Ft. Wayne, Atlanta and Dallas. The Dallas plant was completed last year as part of the firm's program to better serve research and distribution on a regional basis.

## Turco Executives Promoted

Appointment of a new Vice President, General Sales Manager and Assistant to the Vice President, has been announced by Turco Products, Inc., manufacturer of chemical processing compounds.

Buist Beard Van Dyne

Elected as Vice President-Marketing is Dan T. Buist who, for the past seven years was Turco's Director of Sales. Appointed General Sales Manager is Archie K. Beard, who has held various supervisory sales positions with Turco over the past ten years. Named as Assistant to Vice President-Marketing is Stewart B. Van Dyne, for seven years Administrative Assistant to Turco's Director of Sales.

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"This notice to stand in lieu of a written statement to those firms and individuals that have requested same, and to all other interested parties."—(Signed)
William H. Goff, President.

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# QUESTIONS and ANSWERS

## Big Refinishing Job Gives Trouble

We recently refinished three large van loads of mixed furniture. Some was maple wood, some solid walnut and gum, some walnut veneer, some mahogany veneer. We refinished all into dark red mahogany by the process outlined below. After five days in a warehouse, all items exposed to daylight through windows had lost all red stain, leaving only the original colors in the wood.

We have had conflicting advice and we wonder if you can help.

Our process was as follows:

1) Strip with commercial remover (probably acetone, alcohol, benzene and wax). This was done by brushing in an open pan.

2) Wash with tri-sodium phosphate and water.

3) Water rinse and dry over night. (Air dry).

4) Sand all surfaces thoroughly.

5) Re-glue loose joints and patch veneer. Sand.

6) Fill with high-grade, fast-dry mahogany paste wood filler to which we added powdered stain (oil and lacquer-soluble) mixed with VMP naphtha.

7) Wipe and dry four hours. (Air dry).

8) Two coats sanding sealer. (Sand twice).

9) Shade, using the same powdered stain in lacquer.

10) Two coats semi-gloss lacquer.

11) Rub tops with pumice and oil.

One idea is that we should have used non-grain-raising stain which has the additional property of being light-fast. The other view is that ordinary powdered stains are okay if used with the proper solvent, not VMP naphtha. A third idea is that we should never use red stains on refinishing. Some say that if you get the stain down into the wood deeply, it will not fade, and the way to do so is to use a solvent which dries slowly. One firm insists that alcohol stains dry more slowly than the others, and that is why alcohol stains show up darker per application.

Another person says that alcohol dries too fast to get a uniform job, but it has another property of getting in deep chemically; however, it fades more than any other stain. One salesman that sells high quality NGR stain says the secret is that they use analine dye. I have understood, however, that all stains we use are analine dye except pigmented stains. Regarding fillers, one firm claims theirs is ground pigments; another firm simply mixes dyes with natural filler and claims it is the same as the other.

After all of this trouble, we decided to switch to non-grain-raising stain and we purchased new stocks of this material. Then we read instructions to the effect that this stain is to be used on "new wood only." The salesman says this means wood that has had the old finish removed.

The views expressed to us have been well meant but we cannot reconcile all of the various ideas with the particular text books we have. And it is interesting that each time we have referred to a text book, the salesman has remarked that book information is theoretical and differs from actual practice.

We have noted that almost all text book information, as well as commercial instructions for use of various materials, refers to finishing but not to refinishing.

We do a large volume of refinishing of metal and wood. We used to specialize in metal, but lately we are doing a lot of wood. If you have any recommendations in answer to these specific questions, please let us know. —*S. Mfg. Co.*

---

The best practical answer that I can give you regarding your refinishing problem will have to be broken into two categories.

1) Maple, after being stripped and sanded, may be finished in several ways. One is to use a water stain or an NGR stain, but most successfully a pigmented blending or wiping oil stain. Your choice depends a lot on color; however, in your particular color, I would say a wiping oil stain. This is to be left to dry over night before coating.

2) For walnut and mahogany I suggest an NGR stain, followed by a wash coat. Sand lightly with No. 7/0 Garnet paper; then fill and let dry over night. Follow this treatment with a coat of sealer and then sand the surface. In cases where you have gum or other non-porous woods you may have to shade lightly in order to comply with your hardwoods. The amount of shading will depend on your application and control of the NGR stains.

One thing to keep in mind is that while analine dyes are strong in color and penetrating, they are also very bleeding, while NGR stains, if formulated correctly, are fast to light.

There is also a factor in that earth pigment colors are good in color retention, whereas M.F.G. or C.P. colors are not nearly as good. As for the description "new wood only" this means nothing. The only thing necessary when refinishing old work is that it has to be cleaned off thoroughly and well sanded. When this is done any materials can be used, the same as on new wood.

Dark wood fillers, if not left to dry long enough, also have a tendency to gray out or have a blushing effect after the lacquer coats have dried. White or light wood fillers can be coated in four hours time without any difficulties.

In looking over your finishing procedure I would advise you to use only one coat of sealer and two coats of semi-gloss, or three, if desired. Your adhesion will be greater and your finish will have less tendency to crack or chip. As for rubbing, I would recommend sanding with a No. 360 wet-or-dry and oil, followed by burlap and rubbing compound. This will cut your rubbing time and give you a better job.

When washing off, scrub good with coarse steelwool; this will remove all filler and residue from the pores. Otherwise your materials and operations are okay.—*R. E. Horne, Fin. Supt., John E. Sjostrom Co.*

---

## Galvanized Steel; Paint For Shower Cabinets

The Question and Answer section of April issue, pages 100 to 105, included an interesting exchange between N.S. Mfg. Co. and George Conrad, having to do with the effectiveness of galvanized sheet steel under enamel or paint.

The N.S. Mfg. Co. took the position that galvanizing was good when properly prepared to receive paint or enamel, and that the galvanizing contributed substantially to long and satisfactory service. To this position we subscribe, for there is much evidence in proof of same.

Mr. Conrad, on the other hand,

felt that phosphatizing alone was enough and said, concerning the automobile industry, "They waste no money on galvanized sheet, even though the average car is exposed to more rust-producing corrosion in a week than a shower cabinet would get in ten years." He also stated, "You'll see very little rust, even in cars five to ten years old, except on plated parts."

We do not know Mr. Conrad, but suspect he must live in Arizona (dry country). Bitumastic undercoating is increasingly used in the East and Midwest to combat early rust-through, particularly at fender and body junctures. It is interesting to note that during the period of 1950 to 1957 inclusive, the total use of galvanized steel sheet by the Automotive industry divided by the number of cars plus trucks produced, showed the following:

| Year | Lbs. of Galvanized Sheet Per Unit |
|---|---|
| 1950 | 13.1 |
| 1951 | 10.3 |
| 1952 | 10.9 |
| 1953 | 13.2 |
| 1954 | 15.3 |
| 1955 | 19.0 |
| 1956 | 25.8 |
| 1957 | 34.4 |

It would seem that the automotive industry does not agree with Mr. Conrad.—*J. L. Kimberley, Executive V.P. of American Zinc Institute, Inc.*

---

Regarding the question by N.S. Mfg., as published in April issue, we manufacture a finishing material that carries the Underwriter's Laboratories listing as a replacement for galvanized steel on certain air conditioning applications.

In view of the fact that these materials have successfully completed 2640 hours of testing in salt spray in the Underwriter's Laboratories, and 3500 hours of salt spray in our own laboratories, and in view of their outstanding chemical soap and alkali resistance, we believe that they might be of interest to the N.S. Mfg. Co.

If you will give us the name of the person in the N.S. Mfg. Co. who wrote the letter, or pass the above information on to them, we believe that we would be able to render them an outstanding service.—*The Arco Co., Cleveland, Ohio.*

---

## Rust Break-Through in Repainted Steel Drums

I have been supplying a steel drum refinisher with his paint requirements and we have had trouble with rust breaking through the finish in the matter of two to three weeks.

The system now in use is as follows: Drums are burned out to remove old paint film, then sandblasted (good commercial blast), one coat of epoxy primer flash dried at 250° F. interior and exterior, one coat of epoxy coating interior and one coat alkyd baking enamel exterior, and baked at 400° F. for ten minutes.

We have proved that our Epon system will stand up if properly applied and baked at proper temperatures. But due to the roughness of the containers we are trying to coat, it is my opinion that some sort of passavant is needed to neutralize the rust remaining in the deep pitted steel.

I have been advised that there is a concern making a clear rust penetrator or anti-rust solvent that would be compatible with the system we are using. It would be particularly advantageous if a solution such as this were available and could be dipped on. If you know of any such solution that requires no after rinse, please let me know at your earliest convenience, or have the manufac-

turer contact me by letter. We would also like samples—*H. W.*

---

As usual, it is almost impossible to put enough information into a letter, either in explaining the problem or in explaining a possible solution.

My first thought is that all of the trick materials, which are claimed to neutralize or utilize surface rust or contamination, are really not trick materials at all. I believe that any good priming paint, with a good wetting solvent, applied wet, such as with a flow application method, can do a good job.

The only two things that are needed to obtain good performance are: 1) good adhesion, and 2) a high density film. I claim that more than 90% of the field failures are caused directly by faulty application.

I would like to have opportunity to work on that job because the answer is quite obviously contained in the application method.—*E. A. Zahn, Finishing Consultant.*

---

*Editor's Note:* In a letter we are giving you names and addresses of some firms that supply rust-check, rust-stop and rust resistant coatings, primers, etc. However, if you have a reasonably clean dry surface to coat, use suitable materials properly, and are sure the application technique, the drying and the baking are correct, your painting results should be satisfactory in every way—without the use of an extra material and operation.

---

A man's no bigger than the way he treats his fellow man. This standard has been his measure since time began. He's measured by his justice; his sense of right; his fairness at his play; his squareness in all dealings made; his honest upright way.

## Plywood Panel Finishing

We are interested in obtaining information as to the manufacturer of equipment for finishing 4x8-ft. plywood panels. The process described in your September 1955 issue is particularly interesting.—*L. L. Co.*

---

The machine illustrated was made by the McKeage Machinery & Motor Co., 1004 39th St., Brooklyn 19, N. Y. The helically wound tampico brushes were made by the Fuller Brush Co., Fullergript Div., Hartford 2, Conn.

Machines similar to the one described have been made and installed in several large plywood plants and it seems that each machine has been modified to suit the particular plant and what they wanted to accomplish, based on volume of production, species of wood used and finish desired. As you know there are many variables. Close cooperation between the customer, the machine manufacturer and the supplier of finishing materials is necessary for success.—*P.C. Bardin.*

---

## Our Metal Roof Problem; Condensation; Noise

We manufacture a metal carport for which we are interested in a finish that would have some insulating value to it.

We have two problems in the carport that we are making. First, when there is a quick change in the weather it will cause condensation, and moisture will drop off from underneath onto the car. This we would like to eliminate. We believe that some type of undercoating or finish may be able to prevent this.

These metal carports are also being used for drive-in resturants and there they have a complaint about the noise when it is raining. The

same type of undercoating might prevent this.

If you know of any product or manufacturer who might be able to help us, please advise.—*R.B. Co.*

---

There are several approaches to the solution of your problems of both condensation and resonance of your metal roofs on the carports.

Flat metal is more resonant than corrugated; steel is more noisy than aluminum of the same gauge. Aluminum, due to its specific heat would probably be the most likely to induce condensation and sweating. It is my hunch that you are using corrugated aluminum.

First, pitching the roof more would reduce impact of rain and induce drainage of condensation.

Second, the inside of the roof could be coated with any heavy material which would serve as both an insulator and a sound-deadener. Probably the cheapest and easiest to apply would be one of the asphalt type materials used for under-coating automobile bodies. These are usually sprayed on in heavy coats to be effective. They are not very attractive from an appearance standpoint.

A more attractive coating that would be effective for both purposes would be a pastisol. However, this would involve baking to secure adhesion and it might be too costly.

Third, my own choice would be to make your roof out of corrugated panels of polyester-glass. This would solve both defects at little or no extra cost. If the translucence of most commonly available panels is objectionable, they could be made to your specifications with any color or degree of opacity desired.—*Geo. Conrad*

---

*Editor's Note:* Other possibilities in the way of sound-deadening and insulation coatings for the underside of your metal roofs are: 1) flock and 2) Polyurethane foam. Both of these materials can be sprayed. A short illustrated article about spraying polyurethane foam insulation appeared in February 1958 issue of this magazine, page 119.

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## Finishing Teak Wood

We will soon be finishing some teak wood bank fixtures. We would like to have your advice as to the best method of finishing teak wood. —*C. O. Ltd.*

---

First, the surface of teak wood must be thoroughly washed with alcohol, using a sponge or rough cloth. Give it a good scrubbing to remove as much of the surface oil as possible and to get down into the pores.

When the surface dries, after this thorough alcohol wash, some of the wood grain may be slightly raised. Wait until it is thoroughly dry (two or three hours or more); then sand with No. 6/0 sandpaper.

Then an NGR (non-grain-raising) stain may be applied if so desired; or the wood may be filled with an oil-base filler, padded in and cleaned up.

When the filler has dried thoroughly (don't slight this drying) you may apply a vinyl sealer of 12% to 13% solids content. Let the sealer coat dry, and sand lightly with fine sandpaper. Then follow with two coats of water white lacquer. If you elect to use a wash coat before filling, this should be a vinyl sealer thinned down to 3% to 4% solids content.

I have discussed this problem with several finish chemists and it is agreed that if you do a good washing job with the alcohol and allow sufficient drying time all along the line, the system just outlined should give good results.—*P. C. Bardin.*

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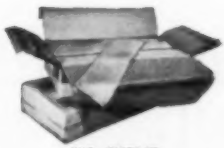

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## Flame Graining of Wood Handles

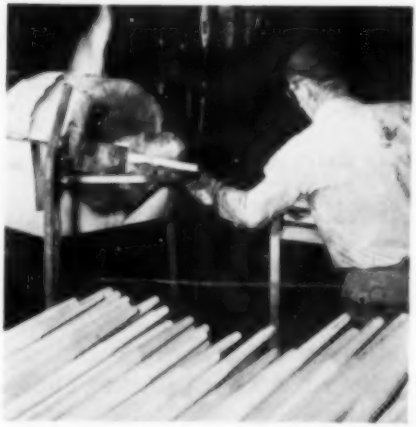
GARDEN TOOL handles with a "new look" and better physical properties are being produced by means of a new heating and finishing process at the United States Steel Products plant in Los Angeles.

They are called "golden grain" handles because they have the appearance of gold with black, wood like grain.

Made from ash, smoothly turned and sanded, the handles are passed through the flames of a white-hot gas furnace where a temperature of around 1800° F. causes superficial charring. This flame treatment gives the handles an unusual appearance; it also solidifies their natural resinous content, thus increasing their strength and weather resistance.

Following the flame charring process, the handles are sanded until all but a few grain-like streaks of "charcoal" remain on their surfaces. Then they are dip coated in clear lacquer and allowed to dry in the usual way.

The coating of clear durable lacquer seals and protects the wood; and it gives the handles a bright natural luster which makes them particularly attractive in appearance.



After this flame treating, wood handles are given a dip coat of durable clear lacquer.

Laboratory tests have shown these flame treated handles will withstand about twice as much abuse as their predecessors. But more important, from the commercial viewpoint, is the fact that they cost no more and they have substantially increased the sale of tools among women patronizing retail stores.—*T. A. Dickinson.*

## Prevention of Rust; Cleaning; Painting

A HALF-HEARTED swipe of paint over a rusted area is not going to cure the rust and corrosion problem, or even slow it down. When inspection turns up a rusted area, the follow-up should include thorough surface preparation and rust-resistant priming before painting.

The reason for surface preparation is to remove contaminants from the surface and to improve paint adhesion. Any priming coat must bond to the metal surface if the finish paint is to last. Paint will fail in direct relation to its lack of adhesion.

Mill scale, rust, dirt, grit, oil, grease and other surface contaminants make good paint adherence impossible. Rust, when it is painted over, continues to form and eventually destroys the paint. Mill scale is likely to be undermined by rust in the same way.

Grease and oil usually require removal by vapor degreasing, washing or wiping with a suitable solvent.

Weld deposits such as weld flux slag, weld flux fumes, weld heat oxides and weld metal spatter are potential forming areas for rust. Weld seams should be carefully cleaned before painting. Strongly alkaline weld slag may cause the paint film to become porous, which will speed the rate of corrosion by permitting moisture penetration.

There are five factors that determine the choice of surface preparation methods: [*See page 108*]

Amazing New
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Chemists call them urethanes! You'll call them amazing! They're the most corrosion-resistant coatings and special product finishes yet developed.
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1) Condition of the surface to be painted.

2) Type of service to which paint and metal will be subjected.

3) Physical limitations to performing the preparation.

4) Cost of the various methods.

5) Type of paint to be applied.

The preparation consists of cleaning and priming. Often more than one method of cleaning may be required to remove all of the contamination from certain surfaces. Also, even when a suitable rust check or rust preventative primer is used, it may be necessary to use two coats to give an adequate bonding surface for the final coat of paint.

Hand cleaning is well adapted to spot cleaning but it is not recommended for use over large areas. Accomplished with wire brushes, abrasives, scrapers, knives, chisels and chipping hammers, the method hits only the high spots. Wire brushing will remove loosely adhering mill scale, rust, old paint films and dried or caked soil. If stratified rust is present, it must be removed by chipping and scraping before brushing. Flat surfaces can usually be brushed at a rate of 2-sq.ft. per minute.

Hand scraping alone with a sharp-edged scraper is one of the least effective methods; it is useful only if old paint is to be removed. Chipping must be done carefully, or it may deform or even pierce the metal, and may drive rust or mill scale into soft metal.

If oil or grease is present, solvent cleaning should precede hand cleaning to

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prevent spreading the grease. If explosive vapors are present, special non-sparking brushes and tools should be used.

Power tool cleaning duplicates hand cleaning methods. But power cleaning (with abrasive wheels and discs, rotary wire brushes, reciprocating sanders, etc.) is more effective and more economical on larger surfaces. After either hand or power tool cleaning, a primer coat of rust preventative paint should be applied before any new or additional rusting occurs. The best results, when service conditions are severe, are offered by a two-coat priming followed by one or more finish coats.

Blast cleaning (with an abrasive or shot) is used where all foreign matter (except heavy deposits of grease and oil) are to be removed down to the bare metal. The abrasive action of the shot or grit particles, discharged at high pressure, will even penetrate crevices.

Flame cleaning may be used where there is no danger of the metal warping and where the surface must be dehydrated. It should not be used on stock that is less than 3/16-in. thick. Flame cleaned surfaces should be wire brushed and dusted before priming, and before condensation commences. Recommended practice is to paint while the metal is still warm and dry —usually in less than two hours after cleaning.

The red lead or other rust-inhibiting primer should not be applied while the surface is still too hot to touch, or adhesion will not be complete. Two coats of primer (with light sanding between coats) plus a one or two coat finish paint should

be used where outside exposure is severe.

More efficient and less hazardous than solvent cleaning, alkali cleaning removes oil, grease and soluble foreign matter. Alkali cleaners may be used in tank soaking, pressure spray, electrolytic cleaning, scrubbing and brushing. The surface must be rinsed in a dilute acid water solution to prevent paint breakdown.

Pickling is an acid cleaning method that requires tank immersion, and is suitable only for easily disassembled portable equipment. After the metal pickles in the dilute acid solution, it is rinsed in water, then given a dilute phosphoric or chromic acid rinse to give a chemical surface that will increase primer bonding.

The acid soak should include inhibitors to prevent excessive etching, and the surface should be thoroughly dry before applying a rust-inhibiting primer. Phosphate treatment may be applied by spray, immersion or brushing. The advantage of a phosphated surface is that it provides excellent paint adhesion and will withstand thermal shock.

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Steam cleaning removes dirt, grime and grease and loose oxidized paint, but will not remove rust, mill scale, or tightly adhering paint. The most efficient steam cleaning includes detergents in the steam-water mixture. If this solution is made alkaline, it will remove heavy grease deposits.

The surface should be rinsed after using an alkaline steam solution to prevent paint vehicle breakdown.

Solvent clean-

ing is usually done by wiping, although the equipment or parts may be dipped or sprayed. It removes grease and oil readily, but care must be taken to change solvent frequently to prevent spreading the contamination.

Depending upon the solvent used, toxicity and fire hazard must be guarded against. Solvent cleaning does not remove rust, paint or mill scale, and since it is used before other cleaning methods, care must be taken to prevent the vapors from being ignited by sparks from brushes or tools.

Since most solvents are petroleum-based and inflammable, workers should be thoroughly instructed on their use. Military Specification MIL-P-116a gives cleaning methods for steel and mentions the type of petroleum solvent to use. Federal Specification P-S-661 covers the use of Stoddard Solvent. The National Safety Council has material on the safe use of vapors and inflammable cleaners.

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*Acknowledgment: The foregoing is part of an article supplied by O. S. Tyson & Co., 230 Park Ave., New York 17, N. Y., for Lead Industries Association, New York, N. Y.*

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# 7 new product finishes from Pratt & Lambert laboratories

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### STIP-TONE

*Tough, Decorative Metal Finish*

Here is a BRAND NEW IDEA in novelty finishes for metal surfaces. Stip-Tone, in its final baked-on form, has an unusual "crater" effect in a stipple or texture finish. It offers a

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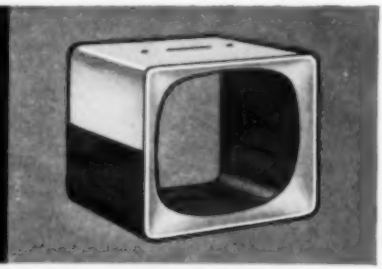

LACQUER FOR PLASTIC

pleasing change from wrinkled or hammered metal and is available in a variety of colors. Stip-Tone provides a good build on rough metals and covers uniformly in a single coat with standard spray equipment. Excellent luster, hardness, and mar-resistance of Stip-Tone make this finish ideal where eye-appeal and wear are important considerations.

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Pratt & Lambert No. 7051 Paper Coating is a fast-drying, synthetic resin coating designed for use on food labels, magazine cover stock, and all other low porosity papers. It is pale in color, dries in 15 seconds to a brilliant luster. Here's a finish which offers both appearance and protection at low cost.

**HYDROLEX BAKING PRIMER RED**

*Super-Safe Water Emulsion Finish*

This is an outstanding water emulsion primer with excellent toughness and adhesion to metal or pressed wallboard. Hydrolex Primer will consistently outlast conventional primers and provide good resistance to acids, alkalies, water and solvents. Because water is the only volatile present, no toxic vapors occur during spraying or drying. The hazards of fire and explosion are also minimized, making possible lower insurance rates.

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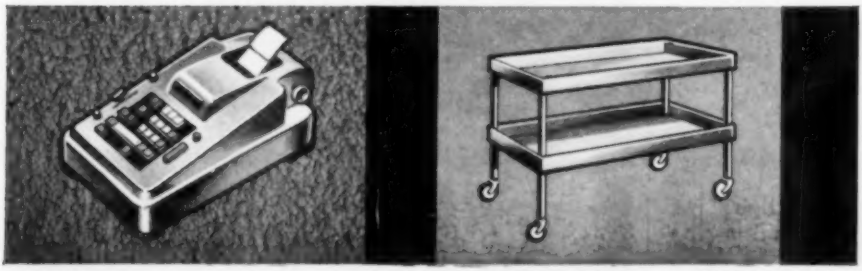

STIP-TONE VX BAKING ENAMEL WHITE

## Acid Cleaners for Quick Finish Job

SUPPOSE YOU HAVE some pieces to paint that are too large for your cleaning tanks; or some work to process when the cleaning solutions are cold? On the other hand, perhaps your cleaning system is not too efficient, yet certain jobs must pass rigid tests for paint adhesion? In these emergencies many finishers will resort to the use of solvent for cleaning, but there is a much better material with which the finisher should be familiar.

Almost every manufacturer of cleaning compounds makes acid cleaners for manual application, but a surprisingly large number of finishers have little or no knowledge of their existence or possibilities. Actually they can be an ace-in-the-hole for solving many a cleaning problem.

Acid cleaners are what you might perhaps call "triple-threat cleaner." They remove every type of grease and soil with ease; they remove light rust and mill scale—and on steel they leave a crystalline deposit which is similar to true phosphatizing. In fact, tests have proved that when properly applied to steel, acid cleaners are second only to true phosphatizing in their contribution to excellent paint adhesion and to rust inhibiting.

They are supplied in concentrated form and are reduced with cold water. The reduction varies from 50/50 to as much as one part of cleaner to five parts of water. The

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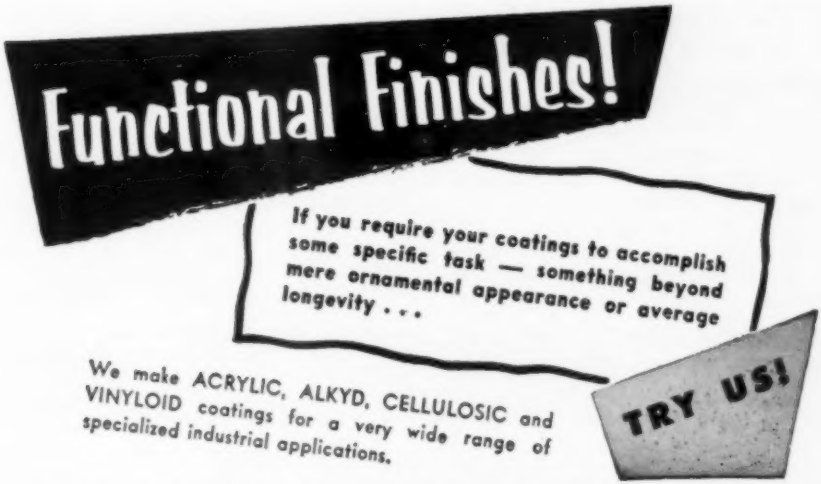
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mixture is swabbed on the soiled area with a rag or stiff brush—and therein lies the secret of its efficiency. The mechanical action works the soil loose and the detergent dissolves the oils while the phosporic acid reacts with the exposed steel. Flushing with water afterward is recommended in connection with some formulations, but most surfaces cleaned this way require only a mopping up with clean dry cloths. Progress is easy to follow because the cleaned steel takes on a distinctly whitish cast. The cleaner should not be allowed to dry on the work.

To remove severe rust deposits, stronger solutions are sometimes required, aided by steelwool or scratch brushes.

While acid cleaners are most effective on iron or steel, they do an excellent cleaning job on all non-ferrous metals except zinc. I like them better than cleaning with solvents.

One word of caution is required. While many operators do work with diluted solutions without gloves, it is advisable to take reasonable precautions to protect clothes, eyes and skin against splashed cleaner.
—*G.A.C.*

---

### *DeVilbiss Spray Gun Catalog*

A new catalog, termed "the industry's most comprehensive on spray guns," is now available from The DeVilbiss Co., Toledo 1, Ohio.

Covering manual and automatic spray guns for general and specialized service, the catalog is designed to tell the user how to select the proper gun for the job and the material to be used, and then how to combine it with the proper nozzle to insure maximum efficiency and economy. It also includes valuable information on cleaning and lubricating spray guns.

All specifications and models for each spray gun are listed.

Copies are available upon request from Dept. 133, The DeVilbiss Co., Toledo 1, Ohio. Ask for Form I-2000.

**For more data, circle 24 on colored card.**

## The Wood Filler Line; Keep it Clean; Safe

THE SO CALLED "filler line" in any wood finishing shop could hardly be called a neat, clean place. The fact that oil filler is applied either by spraying or brushing—both on a production basis—causes some of the filler to be spilled on the floor. After the filler has flashed (air dried briefly) the follow-up padding-in operation—by power driven rotary blades or reciprocating machine, or by hand—results in some additional spilled filler on the floor. And finally, cleaning the filled surface with rags and stick-picks for corners adds soft little filler balls and particles to accumulate on the floor. The tow or burlap sometimes used for hand padding and the clean-up rags—these also add to the general messiness of the typical filler line.

Bales of tow, burlap or rags must be conveniently located for the operators' use, and this adds much to the general disorder of this work area. Under practical working conditions it is impossible to entirely eliminate either the disarray or filler spilled on the floor in this section of the finishing room.

Some of the disorder can be corrected by keeping clean tow, burlap and rags in metal containers located along the line. Adjacent to these, metal containers should be placed to receive used tow, burlap and rags that are saturated with filler. It is just as easy for the operator to toss these

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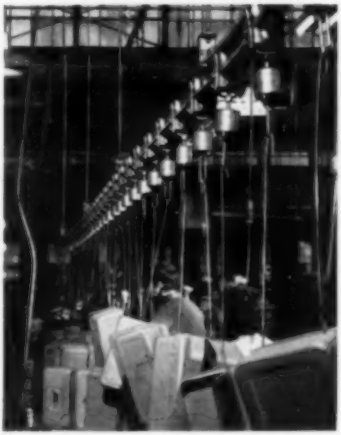

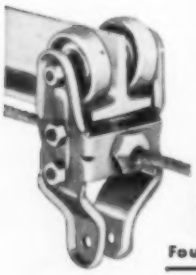

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soiled wipers into the container as to toss them on the floor and then kick them over against the wall or partition. To reduce fire hazard, these filler soaked wipers should be collected at regular intervals—certainly at the end of the day—and disposed of.

It is almost impossible to prevent wet filler from dripping on the floor, especially if the filler is hand brushed. The same thing applies to the area extending out for some 20 to 40-ft. beyond where the filler is padded-in. If it is allowed to remain on the floor, the filler will harden and accumulate to a thickness of 1-in. or 2-in. Then it is very difficult to remove.

One method of making cleaning a little easier is to cover the floor in this particular area with large sheets of fiber board. Strips of double surfaced pressure sensitive tape are laid on the floor, and the fiber sheets are then placed on these strips to anchor them firmly to the floor. When filler accumulates sufficiently on these fiber sheets they are removed, disposed of, and replaced with clean sheets laid on fresh tape. Meanwhile, the floor beneath remains clean. Fiber sheets are safer than metal plates because when filler is spilled, the fiberboard does not become slippery.

Before the fiber sheets are put down the floor should be thoroughly cleaned of all filler. If there is an accumulation of from 1-in to 2-in. of dried filler on the floor, it can be removed as follows: First spread about 1-in. thickness of sawdust over the crust and then wet the sawdust thoroughly. Keep it well wet down for about 48 hours or more, preferably over a weekend. This will soften the dried filler so that it may be scraped off with a sharp spade or other convenient tool. Another advantage of this method of softening the dried filler is that no fire hazard is involved.

Remember this: *You can give a tremendous lift to the morale and eagerness-to-work of your filler crew by arranging to have them or other men clean up their working quarters after working hours every day, so that your filler workers will return to a cleaned-up work station every morning.* Consider it yourself.
—*J.M.T.*

## Use Good Thinner on Quality Paint Work

IF A LACQUER thinner is to do its job well, there are three functions it should perform:

1) It must reduce the body of the lacquer. A quality thinner will always reduce or "cut" a lacquer to just the right spraying consistency when mixed in the proper proportion.

2) It should not evaporate too fast. The space between the tip of the spray gun and the area being painted is a mighty important one. It is here that many of the cheaper thinners fall down, because they evaporate so fast that much of the material is actually lost in the air before reaching the surface.

3) The lacquer thinner should contribute to the appearance of the finished job by allowing the lacquer top coat to flow out and level itself to a smooth, even surface. This simply means greater gloss resulting in less compounding (rubbing and polishing with compound).

Because of the wide variety of climatic conditions under which lacquer is used in the shop—from cold, wintry weather to hot, humid days—thinners are called upon to perform many secondary, yet important functions. Blushing in the lacquer top coat, for instance, is not uncommon when temperature and humidity are high. Under such circumstances, a thinner that dries too fast will lower the temperature of the lacquer film, causing moisture from the atsmosphere to condense in the finish. This

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results in the white frosty appearance which we call blushing. There are retarder-type thinners which have built-in safeguards to help prevent problems like this.

Other thinners are especially blended for specific purposes such as lift resistance (helps prevent raising of sandpaper scratches), adhesion and reduction of labor in the rubbing and polishing operation.

Thus, it is important not only to buy a quality thinner, but to choose the right thinner to fit the job and weather conditions. A thinner that is bought on the basis of low price alone may save you pennies in the purchase price, but you're likely to spend extra dollars in time and labor on the job.

A few cents more for good thinners brings you big returns in trouble-free jobs, time and labor savings, and most important — customer satisfaction. They cut your job costs by reducing compounding time and give you the best spraying qualities, flow and leveling, and high blush resistance.

Since no one thinner is suitable for all jobs under all shop conditions, a variety of top grade lacquer thinners is required to cover every shop need. Choose a fast thinner for a cold shop, a slower thinner for hot weather, a special lift-resistant thinner, and even a double-purpose thinner which is suitable for use in both the new acrylic and conventional lacquers.

It has been said that selecting the wrong thinner results in more paint shop difficulties than any other cause. That's why it is so important to "know your thinners"; then you can always pick the right thinner for the job.—*DuPont's Refinisher News.*

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Rubbish, such as old papers and rags, is a fire hazard. It not only starts fires itself, but furnishes fuel for fires starting from other causes.

## The Prepaint Treatment On New Truck Rims

FEW PAINTED steel articles are subjected to more severe service than truck rims. Along their guantlet of abuse are road salts, water, abrasion by mud, sand and gravel, and chipping caused by changing tires, using chains and scraping against curbs and other objects.

When drastic service is unavoidable, as in this instance, there are just two things to do: Prepare the steel surface for maximum paint adherence and corrosion resistance, and then apply the most resistant finish available. Here's how these aims are accomplished at Firestone Steel Products Co., manufacturer of heavy-duty rims, in Wyandotte, Michigan.

As an appropriate introduction to a long life of traveling, trucks rims (24 tons of them at a time) get their first ride during processing and painting on a conveyor system which is over half a mile long. Rims coming from the fabricating departments are loaded onto an overhead monorail conveyor with hooks resembling those on a J-bar ski tow. At the end of the loading area, the steel rims approach an enormous 6-stage washer some 300-ft. long.

The first step in the process is immersion in a solution of rust stripper, a special heavy-duty alkaline detergent combining deoxidizing properties. There is a dual purpose to this particular product. It assures complete removal of oxides and organic contamination and it leaves


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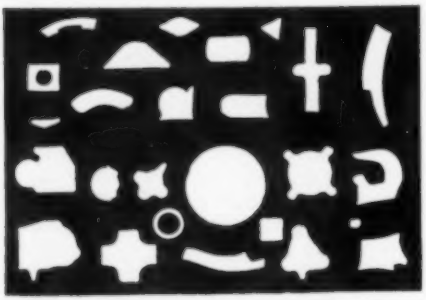
One unit to handle most of your spray mask painting operations, complete versatility up to 32" stroke.

MODEL BS-6M



**Pre-Cut Masks Speed Finishing**

Brady Pre-Cut Masks are self-sticking — go on fast and accurately. Protect from finishing to inspection. Hundreds of shapes and sizes in stock, for paint spraying, baking, tumbling, etc. Specials made to order. Fast delivery. Distributors in 150 cities.

Write for free samples and Bulletin 160-C.

W. H. Brady Co.
733 W. Glendale Ave., Milwaukee 9, Wis.

*Ask About*

**GRAINING**

**with plates or cylinder machines**

Used for twenty-eight years by leading manufacturers for reproduction of wood grains on wood, hard-board and metal.

**AMERICAN RICHWOOD PRODUCTS CO.**
*Graining Plate Division*
104 E. Mason St. Milwaukee 2, Wis.

the steel surface in an activated condition so that the maximum phosphate coating is produced. Two water spray rinses follow.

In the fourth stage, rims are treated with a phosphating solution. This is the step that promotes good paint adherence and imparts the necessary high resistance to corrosion.

The phosphating process accomplishes this by converting the steel surface to an inert metal phosphate. This protective surface becomes an actual part of the steel. It neutralizes the ever-present electromotive forces and prevents the formation of corrosion products underneath the paint.

Of course, there is nothing that will prevent rusting where a painted steel surface is damaged or scratched to the underlying metal. But of utmost importance to products subjected to severe abuse, phosphatizing the surface prevents rust from creeping beneath the paint, causing failure of the coating over larger areas.

The fifth compartment of the washer is an overflowing fresh water rinse. The sixth stage, a final acidified rinse, marks the end of the washing machine, but by no means the end of the conveyor ride for the rims.

As rims leave the washer, they are carried through a drying oven and then through an air-cooled section to reduce their surface temperature. Next comes immersion in a dip paint tank, followed by steps which provide or drain-off and flash-out of solvents. Following flash-out and air drying, rims are baked in a large 2-zone gas convection oven.

The complete cycle takes about 2½ hours, after which the conveyor hooks are stripped and the cycle is repeated. —*Oakite News Service.*

---

Recent developments in the automatic control of machines make it possible for more manufacturers to use automation economically.

## Multiple Swivel Pneumatic Atomizing Nozzle

A new type of pneumatic atomizing nozzle for simultaneous spraying in two or more directions is now announced by Spraying Systems Co., 3240 Randolph St., Bellwood, Illinois. This new nozzle provides a compact and very simplified method to meet multiple position spraying needs in a wide variety of industrial applications.

The nozzle can be supplied with two, three or four heads, with each one adjustable to any position in a 360° range.

Nozzles are supplied standard in brass and are also available in stainless steel. For more information, write for 7545 Multiple Swivel Pneumatic Atomizing Nozzle Data Sheet, to Spraying Systems Co., Bellwood, Illinois.

**For more data, circle 1 on colored card.**

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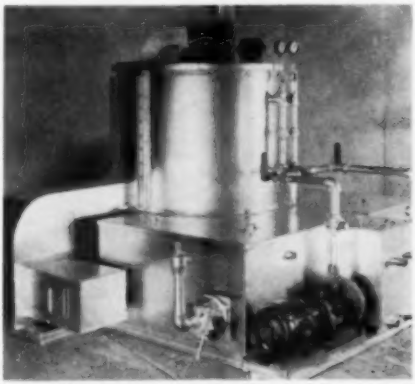
## Parts Washer Has Spray Wash Rinse and Dryoff

Drying Systems Co., 1825 Foster Ave., Chicago 40, Ill., has developed a new rotary compartment type washing machine for cleaning small parts in batches. This is the answer to many manufacturers whose requirements do not warrant the more elaborate washing systems used on production lines.

The washer includes a circular housing containing a circular turntable which is divided into four sections by partitions, each section the shape of a quarter pie, with vertical walls separating the sections from each other.

As the turntable is rotated ¼ turn each time, the work progresses from the loading segment through a spray wash, spray rinse, hot air dryoff, and thence back to the loading-unloading station, which has a sliding door.

The wash and rinse sections have separate water tanks below these sections, with separate pumps to supply the spray nozzles, which are located above and below the work. The water in each of the two tanks is heated,



**Overall size is 7x8x7-ft.; the usable area of turntable is one fourth of the 50-in. circle.**

using gas-fired immersion tubes. The dryoff section is heated with waste heat from the gas burners on the tanks.

A blower supplies the hot air to the dryoff section, and another fan exhausts the air, together with vapors from the spray sections, to the outside.

Rotation of the turntable can be manual, or it can be arranged to move automatically through many stages by automatic timing, in which case an audible or visual signal goes on at the end of the cycle, notifying the operator that the machine is ready for the next batch.

A typical timing schedule, whether automatic or manual, would be about one minute wash, ½ minute rinse, three minute dryoff, plus ½ minute lost in motion, plus two minutes for loading and unloading, making a total of seven minutes total time per batch.

The work can be set in the machine either in wire mesh trays, or directly on the turntable, depending on the size of the pieces.

**For more data, circle 2 on colored card.**

---

## Emulsifiable Solvent Cleaner

For rapid, cold cleaning of all metals to remove heavy oil films and solid dirt, Enthone, Inc., 444 Elm St., New Haven, Conn., a subsidiary of American Smelting & Refining Co., has developed Emulsion Cleaner 62. This new product is a gold-colored liquid which is supplied in ready-to-use form or as a concentrate. Immersion in the cleaner at room temperature for 5 to 60 seconds, followed by cold water rinsing, is sufficient to completely preclean metals preparatory to plating, phosphating or blackening.

Emulsion Cleaner 62 is economical to use; it is low in cost and requires only a plain steel tank or drum without any heating or cooling facilities. It will absorb high concentrations of oil and grease before becoming inoperative.

The new cleaner is neutral in nature and will not attack such reactive metals as aluminum, zinc, brass or magnesium. Since it contains no alkalis, it is not harsh to operator's skin. Also, it does not contaminate alkali electrocleaners that may be used following precleaning.

**For more data, circle 3 on colored card.**

---

## Nordson Automatic Spray Gun

Available to all users of Nordson Airless Spray and hydraulic spray painting equipment, is the new Nordson AG-100-B Automatic Spray Gun.

The new Nordson Automatic Spray Gun provides the following distinct features.

Has several new and desirable features.

1) Designed to work at speeds up to 3000 cycles per minute, this gun employs frictionless seals instead of troublesome packings.

2) The design of the AG-100-B gun eliminates needle packings completely. Instead, the needle floats in the material being sprayed and is controlled by a finger which operates within a teflon boot.

3) Cup leathers and rubbers have been eliminated and instead the small air cylinder which triggers the gun is designed around a trouble-free frictionless diaphram.

4) On automatic guns previously

used with the airless spray coating process, the hoses attached near the spray nozzle. This new gun is free of such encumberance. Both paint hoses, as well as the trigger-air hose, are located at the rear of the gun.

5) The airless spray coating method imposes a severe wear condition on the needle and seat of any gun. The specially designed carbide needle and seat of this gun will withstand millions of cycles, even on materials such as red iron oxide.

6) Despite its many unique features and its rugged construction, the new gun weighs less than 2-lbs. which is considerably less than the automatic guns formerly used for airless spray coating.

Airless spray painting, a comparatively recent development for applying finishing and coating materials, utilizes no air for atomizing or delivering the material to the work. By applying hydraulic pressures to heated finishing and coating materials, and eliminating atomizing air, overspray is drastically reduced. Material savings as high as 45% are reported. Also, health and fire hazards are decreased.

**For more data, circle 4 on colored card.**

## Auto-Jet Screen Process Drier

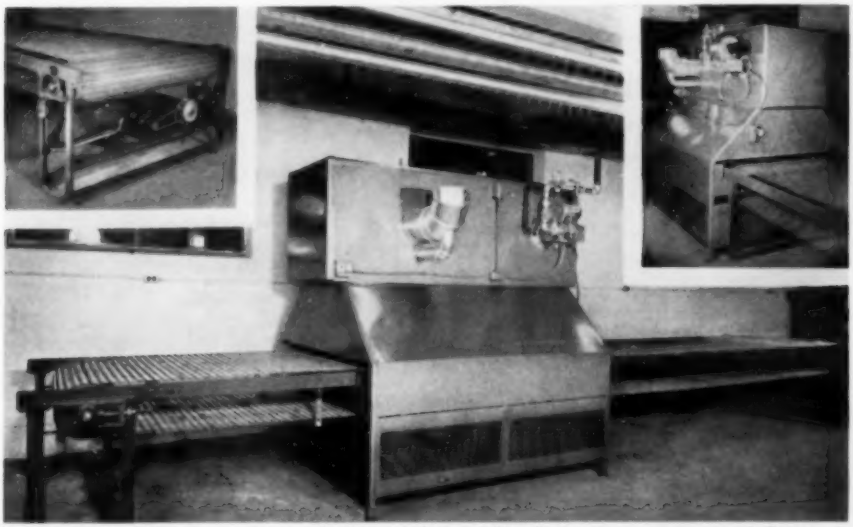
The accompanying illustration shows views of the Auto-Jet Process Drier for quickly and safely drying flat work that has been screen processed.

The oven (gas or oil heat) is 80-in. long. It is well insulated, has controllable air re-circulation and gives forth a powerful jet air stream; temperatures up to 300° F.

A balanced metal belt, which carries flat work through the oven, has a variable-speed drive and operates quietly and safely.

Further information on these and other features of the Auto-Jet Drier for screen process work can be obtained from Advance Process Supply Co., 1442 W. Kinzie St., Chicago, Ill.

**For more data, circle 5 on colored card.**



**The Auto-Jet Drier is a conveyorized oven for quickly drying screen processed flat work.**

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Write for instructive Catalog and Color Charts

ADVANCE PROCESS SUPPLY CO.
1442 WEST KINZIE STREET
CHICAGO 22, ILLINOIS

## Liquid Cleaner From DuBois

A new cleaner with emphasis on economy and safety, called "Prime," for use on all kinds of surfaces—metal, painted, plastic, fabrics, leather, rubber—is announced by the DuBois Co., Inc., 1120 W. Front St., Cincinnati 3, Ohio.

"Prime" is concentrated so it can be diluted with water as much as 1 to 100 for light soiled areas. It is free of fire hazard and non-toxic properties; it's also skin safe, and contains no unpleasant odor.

**For more data, circle 6 on colored card.**

## Surface Finishing Machines for Printed Circuitry

Modifications in two basic surface finishing machines, especially adaptable for printed circuitry, have been announced by Clair Mfg. Co., Inc., Olean, New York.

Clair engineers and designers have worked in conjunction with Surface Finishing Consultants—R. B. Blass Company, Deal, N. J.—and other concerns confronted with printed circuitry problems to modify Clair Surface Finishing model No. 203 and No. 209 for printed circuitry applications.

These modifications comprehend three major functions: 1) Removal of objectionable "mold release" from the plastic prior to copper; 2) Clean-up of copper clad laminate prior to etching; 3) Removal of "resist" and final clean-up of copper after etching.

The Blass techniques are dry, greaseless, simple and inexpensive. They apply identically to all three operations, performed on either Model No. 203 or No. 209. The only difference is in the design of these two Clair machines.

Model No. 209 is a pinch-roll, through-feed design. It is adequate for maximum or randum lengths.

DRY-SYS Equipments CHICAGO

**OVENS — WASHERS — AIR HEATERS**

**— COMPLETE FINISHING SYSTEMS —**

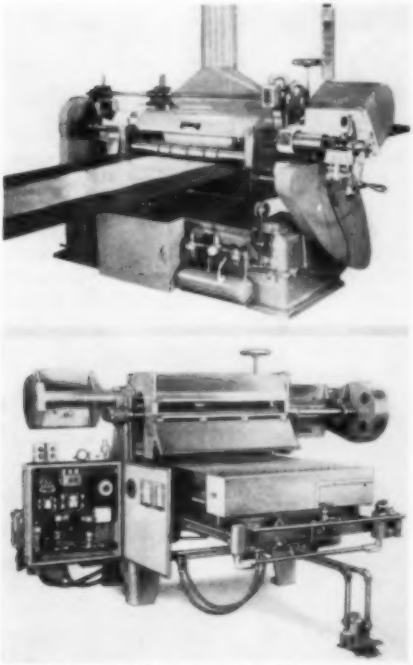
***Call or Write — We Will Do the Rest***

**DRYING SYSTEMS CO.**

**1825 FOSTER AVENUE CHICAGO 40, ILL.**

Properly conveyorized, or equipped with automatic discharge stacking, one operator can keep it at capacity —which varies only according to "rough" condition, extent of corrosion and other variables within the range of 20 to 40 linear feet per minute.

Model No. 203 incorporates a reciprocating table which holds the work either by means of integral vacuum chucking or mechanical means. Maximum production efficiency closely approaches that of Model No. 209, provided runs of identical sizes are of sufficient volume to justify one minute down time in which to reset the machine for another size. Clair Model No. 203 affords an advantage in that it is a multiple pass design and if the extent of corrosion varies over a wide range, the speed of table can be set for adequate removal of lesser corrosion with a single reciprocation. But, the work being visible to the operator, multiple repeat passes are at his option where the extent of corrosion or rough condition is severe.



No. 209 and 203 surface finishing machines.

Both Clair Models incorporate identical interchangeable spindles and rolls, which can be replaced if necessary in two minutes. Each incorporate air floating spindles that assure uniform contact pressure at any predetermined setting. Both are capable of complete coverage without salvage. All low voltage control circuits are energized by an integral transformer and particular emphasis has been placed upon safety. The through feed Model No. 209 incorporates an automatic device to sense the leading and trailing ends of the work. The roll remains in the clear when no work is in the machine.

**For more data, circle 7 on colored card.**

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Reflected glare is light reflected by a polished surface into the eyes. Because it frequently comes from below, where the eye lacks protection, reflected glare often is more harmful than direct glare.

## Polychrome Metallic Hammer-Effect Baking Enamel

Kromotex is a very new polychrome metallic baking enamel that has the unusual feature of forming an attractive uniform pattern without relying on skillful spraying techniques.

This new finish is not sensitive to loss of pattern because of overspray; it retains pattern uniformity over curved and rounded shapes and it is not sensitive to normal variations in film thickness. It can be applied by hand spray or automatic spraying equipment and will bake at normal schedules for synthetic enamels. These features will appeal to finishing room supervisors who have been plagued with pattern irregularities and a high rate of rejects in their finished work.

Kromotex has a "porcelain-like" appearance when applied in a heavy wet coat and does an excellant job of hiding blemishes in the metal surface. The final baked enamel has a glossy, hard, mar-resistant finish and yet is smooth enough to permit easy cleaning of the finished product.

It has a "porcelain-like" appearance when applied in a heavy wet coat and baked.

This new finish is available in a wide selection of colors ranging from bright gold and copper to beautiful pastel shades and deep colors. These properties suggest Kromotex as an excellent finish for many different products; it is of special interest to industrial designers who are looking for something new and decorative but want to retain the economy of a one coat finish.

Baking schedules will vary according to the thickness of metal used. Suggested schedules are: 275° F. for 30 minutes; 300° F. for 20 minutes; 325° F. for 12 minutes.

This new material is a product of Standard-Toch Chemicals, Inc., 2600 Richmond Terrace, Staten Island 3, New York.

**For more data, circle 8 on colored card.**

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## New Self-Bonding Nameplates

New polyester film self-bonding nameplates can be made to customer specifications as dials, rating plates, instruction plates or decorative trim. Named Poly-Plates, they offer many user advantages over conventional metal nameplate identification according to W. H. Brady Co., 727 W. Glendale Ave., Milwaukee 9, Wisc., manufacturer of self-bonding industrial identification.

The Poly-Plate is made from durable polyester film (Mylar). It is sub-surface printed, metalized and sealed to assure permanent legibility of legend, trade mark, pattern design or decorative trim.

The flexible film Poly-Plates are reproduced to exact color match. Insignia, artwork and even halftones can be included in the nameplate design. The sub-surface legend is protected from salt spray, solvents and detergents by a crystal clear film in

a one-piece construction. Color-fast inks do not fade when exposed to sunlight, industrial vapors or harsh chemicals. Poly-Plates far exceed MIL specifications for abrasion resistance. They can be used for both outdoor and indoor identification.

The sparkling polyester film nameplates can be applied to flat or curved, painted or unpainted metal, wood, plastic or glass surfaces without application tools. No activators such as water, solvent or heat are required to bond the instant acting adhesive to a surface permanently. Self-bonding Poly-Plates require no holes to drill, no mechanical fastening devices. Workers simply peel off the Blue Streak Release liner and apply the plate to surface. They can be applied flush mounted on production lines as fast as one every two seconds. Special shapes, die cuts and serial numbered identification are offered as a customer service.

**For more data, circle 9 on colored card.**

## Use "Dustix" Tack Rag to Clean Before Coating

All finishers know that dust and other foreign particles, if not removed prior to painting or finishing, will leave a blemish or defect on the finished surface. "Dustix" cloth is especially practical for cleaning off surfaces just before paint, lacquer or enamel is applied. "Dustix" picks up dust, dirt particles of lint or sand, even particles too small to be seen with the naked eye.

**Wipes surfaces clean of all dust and lint.**

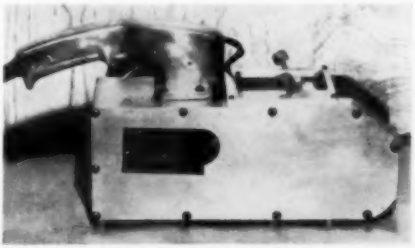
The "Dustix" cloth is chemically treated cheesecloth, which retains a permanent "tack." "Dustix" will not dry hard or catch fire. It will stay tacky for years, always ready for use.

For more information write the manufacturer, Modern 1st Aid Necessities Co., 737 W. Randolph St., Chicago 6, Ill.

**For more data, circle 10 on colored card.**

## Portable Hand Graining Applicator for Edges

The Union Tool Corp., Warsaw, Indiana, announces a new light, portable Hand-Graining Applicator for edge trimming. This well balanced unit weighs only 15-lbs., can be easily handled by the operator. It comes with 10-ft. of electrical cord and can be connected to any convenient 110-volt, single phase, 60-cycle outlet.



**Weighs only 15-lbs.; widths up to 2½-in.**

The Hand-Graining Applicator is capable of edge graining at a speed of 101-ft per minute, continuous operation. It has a drip-type feed for the ink and scraper blades on image roll and actual coating contact roll. Arrangements have been made for

quick removal of the etched image roll so that patterns can be changed as necessary. The rubber rolls, two of which are required in the machine, are of a sleeve type and can be readily removed for replacement.

The graining applicator will accommodate widths up to 2½-in. of face roll width. This image roll and actual contact roll both have scraper bars to ensure clean-cut images. These scraper bars are pressure-loaded and release when the unit is in an inoperative position and turned off.

**For more data, circle 11 on colored card.**

## Ovens Increase Efficiency And Conserve Floor Space

New "Type 110" and "Type 40" industrial ovens, designed for drying, baking and curing applications, are now available from The Kirk & Blum Mfg. Co., 3131 Forrer St., Cincinnati 9, Ohio. The ovens feature built-in recirculating air passages and equipment to assure increased efficiency and uniformity of heat throughout.

**A well ventilated, uniformly heated oven.**

Floor space requirements are minimized, since all equipment, except for the centralized control panel, is mounted on top of the oven.

An operating temperature range of 200° to 600° F. is provided by pressure-mixing type, direct-fired gas burner. Electricity, oil or steam heating equipment is available. The burner, as well as the recirculating fan, are enclosed and insulated to conserve heat. The multi-blade recirculating fan has external bearings.

Recirculating equipment includes a duct system with adjustable slots full length of the work space in order to provide even temperature throughout the oven. Provision is also made for mixing filtered fresh air with recirculated air. A centrifugal fan exhausts the oven and removes the products of combustion.

**For more data, circle 12 on colored card.**

## New Wrinkle Finish for Vacuum Metallizing

A new wrinkle finish designed for use as a base coat for vacuum metallizing on metal stampings and castings has been developed by the Bee Chemical Company, Logo Division, 12933 South Stony Island Ave., Chicago 33, Illinois.

The new product, Logo Wrinkle EA-616, has been subjected to rigid production and laboratory tests. A common production problem with wrinkle finishes, the inability to obtain a uniform wrinkle pattern which is magnified on vacuum plated parts, has been greatly reduced with this new coating. The material has been run on complex castings using both hand spray and electrostatic spray with good results.

Although this coating was perfected for use with vacuum coating, the advances made in ease of use and performance are expected to make it

[*Continued on page 133*]

# For Your Convenience

Use INDUSTRIAL FINISHING magazine's "Reader Service" return cards to obtain further information on products described and illustrated in the "Materials; Supplies; Equipment" section which precedes this page; also to receive further information on what manufacturers have to offer—literature, products, supplies, services, etc., as mentioned on the following pages.

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June, 1958, Issue

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of interest to other users of wrinkle finishes. Wrinkle EA-616 requires only a 30-minute bake at 325°F., to cure to a hard, durable state.

A system using the wrinkle base coat and Logo M-1709 top coat over the vacuum aluminum coat has withstood 1000 hours in the humidity cabinet with no visible signs of failure in softening, blistering, or loss of adhesion.

**For more data, circle 13 on colored card.**

## Sifting and Straining Screens

In addition to their use in screen process work fine mesh materials such as silk, Nylon, Dacron, organdy and metallics, including stainless steel and phosphor bronze are used for the sifting and straining of powders, chemicals and paint products. In the metallic lines, stainless steel is being woven to an unbelievable fineness—and of course it has the advantage of great strength and durability.

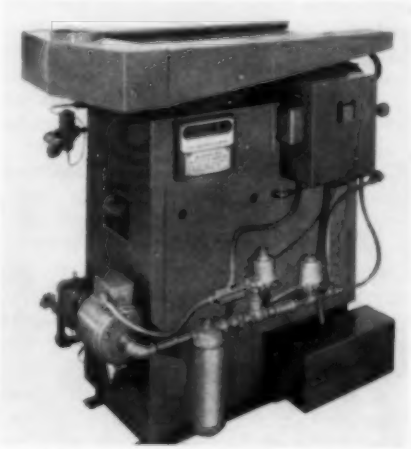
Advance Process Supply Co., 1442 W. Kinzie St., Chicago 22, Ill., supplies these fine mesh materials in widths of 40 to 80-in. Materials are available that have mesh openings as coarse as 30 to the inch, and from this, in varying meshes, up to the fantastic fineness of 500 to the inch.

**For more data, circle 14 on colored card.**

## Ultrasonic Cleaning Machines

The Circo Equipment Co., 51 Terminal Ave., Rahway, N. J., now offers a line of seven standard ultrasonic cleaning machines equipped to meet industry's most exacting needs.

Removal of buffing and polishing compounds, honing and abrasive materials, machining chips and nonsoluble deposits is now practical and rapid with Circosonic Ultrasonic cleaning equipment. Blind holes and inaccessible recesses no longer must be hand scavenged and wiped clean. Now, in one complete cleaning system, work can be cleaned with a great saving in labor cost.



*It's fabricated from heavy rustproof steel.*

The cleanliness of the ultrasonic chamber is maintained to a ten micron efficiency through a high flow removable honeycomb filter element. A powerful centrifugal pump provides circulation and spray lance feed.

The ultrasonic chamber is provided with a baffled water cooled jacket to maintain an optimum temperature of 140° F. Self-actuating control valve controls the water flow accurately to hold the required temperature without attention.

**For more data, circle 15 on colored card.**

## Strippable Protective Coatings

Guard Coatings Corporation, 8-05 43rd Ave., Long Island City, N. Y., announces two strippable coatings, Metalguard S-5119 and Metalguard S-5219, designed specifically for outdoor protection of stainless steel and aluminum architectural metalwork,

during erection and construction as well as during shipment and storage.

These materials are plastic solutions in organic solvents which, on air drying, form tough flexible and strippable films. These films have resistance to degradation when exposed for long periods to all extremes of weather. Having excellent abrasion resistance, they act as barriers to and are not attacked by water, moisture, chemicals and chemical fumes.

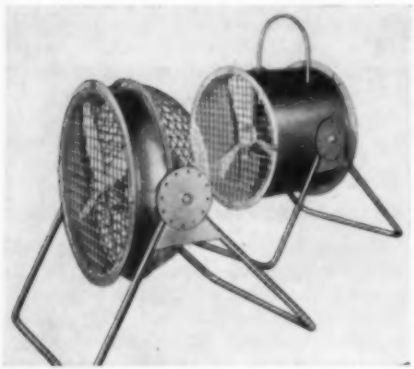
**For more data, circle 16 on colored card.**

## Exhaust and Process Fans

The Propellair Division of Robbins & Myers, Inc., Springfield, Ohio, offers a new line of direct connected cradle mounted fans designed for product cooling, man cooling, drying, recirculation, elimination of air stratification and similar applications where the movement of air will improve the efficiency of the job being performed. Available in five sizes from 16-in. through 36-in., the new fans have air delivery ratings up to 18,700-cu.ft. per minute.

An indexing fixture mounted on the side of the cradle permits the fan to be rotated through a full 360° to provide any discharge angle.

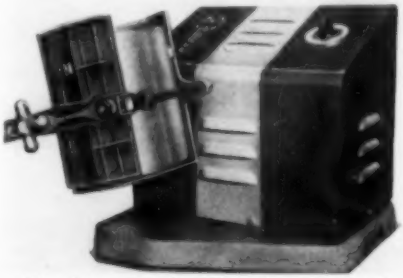
**For more data, circle 17 on colored card.**



**In five sizes, 16-in. through 36-in.**

## Delux Paint Can Shaker

Here is "the one paint mixer with all of the features that paint men have asked for," according to the manufacturer, Miracle Paint Rejuvenator Co., 128 E. 10th St., St. Paul, Minnesota.



**Can be mounted on bench or pedestal.**

Features of the Miracle Deluxe Counter Model include the following:

1) Quiet, fast, efficient operation.
2) Doesn't need to be bolted down.
3) Minimum vibration.
4) Moving parts are encased in grease-sealed ball bearings.
5) Automatic Timostat stops mixer when dialed number of minutes have elapsed.

**For more data, circle 18 on colored card.**

## Polyester Fibreglas Trays

Kennet die-molded polyester fibreglas trays for high temperature and corrosive materials handling applications are available from National Vulcanized Fibre Co., 1058 Beech St., Wilmington 99, Dela. Under humid conditions they are dimensionally stable and can be used at temperatures ranging from 45° to 225° F. without dimensional change or surface damage. Die-molded of polyester fibreglas, the trays are seamless and resistant to most acids, alkalies and chemicals.

**For more data, circle 19 on colored card.**

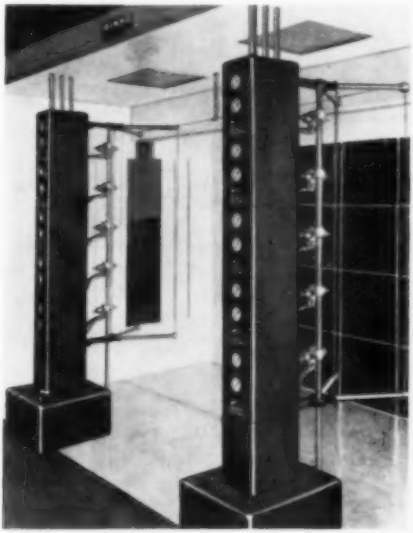
## Electrostatic Spray Systems By Binks Mfg. Co.

Binks Mfg. Co., Chicago, now offers compact, modular electrostatic spray painting systems.

In the Binks electrostatic spraying system, paint leaves an automatic air atomizing spray gun and receives a negative electrical charge. The metal object being painted is electrically grounded. Because of this postive-negative condition, the product acts as a magnet for the paint. This powerful product-paint attraction assures maximum coverage and utilization.

The Binks system is applicable to the painting of metallic products that can be handled on overhead conveyors or base-mounted conveyorized spindles. Overspray is greatly reduced, thereby lowering finishing costs. Reduced overspray, in turn, cuts down on spray booth clean-up time.

The equipment is housed in modular, self contained packages. Within each package are fluid and air pressure controls with regulator valves and necessary hoses. Neatly arranged in instrument panel style at the rear of the case are the fluid and air pressure gauges and a spray gun test button with which the operator can test actuate any single gun for spray pattern without disengaging other spray guns in the system. The modular units may be stacked and clamped one on the other depending on product measurement or variety of shape. For instance, if it is desired to finish a product with several difficult-to-coat surfaces, three or more spray guns with packaged accessories would be mounted in a vertical gun control station, positioned and aimed to do the job efficiently.



Here are two 5-spray-gun units positioned at the front of a Binks spray booth. Each modular unit has a 7½x9-in. access door to use in setting material and air pressures.

Standard Binks Model 21 automatically triggered spray guns are mounted on a vertical plated rod which is supported by two Y-shaped yokes, one above and one below the spray gun. Each gun is completely adjustable up or down, right or left on the vertical rod.

Two stand-off insulating rods form the arms of the Y yoke and support the electrostatic grid about 12-in. out from the spray gun nozzle. The grid provides maximum point surface for effective corona discharge.

The systems operate on 100,000 volts at 5 milliamps maximum. The entire electrical system, power transmission and supply, is interlocked for safety and will automatically cut off in case a grounded object comes too close to the electrostatic grids.

For an illustrated bulletin giving details on the Modular Electrostatic Spray Units, write to the Binks Mfg. Co., 3116 Carroll Ave., Chicago, Ill. **For more data, circle 20 on colored card.**

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# What Manufacturers Offer--Literature, Materials, Equipment, Supplies, Services

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**Some of the returned cards we receive are not filled in correctly—and we cannot read a few of the hand written names and addresses. Before returning a card, please check to see if it is marked correctly—and legibly, including your name and address. Thank you.—Editor.**

**Drum Upender No. 32** for upending heavy drums, takes the strain and effort out of handling drums of paint, etc. Sizes and shape of upender spreads lifting pressure over large area to prevent drum damage. Morse Mfg. Co., Inc., 763 W. Manlius St., East Syracuse, N. Y.

**For more data, circle 25 on colored card.**

**Non-dripping Lubricants** for conveyors and other moving parts, made by Dow Corning Corp., Midland, Michigan. These are silicone greases that won't melt or drip at 450° F. Silicone lubricants withstand continuous high temperatures and corrosive fumes without oxidizing, decomposing, gumming. There's no dripping on newly finished parts. Ideal lubricants for conveyor bearings, cams, gears, valves, other moving parts. Free booklet on request.

**For more data, circle 26 on colored card.**

**Specific Coating Problems** receive the attention of experienced research engineers in the laboratories of Universal Paint & Varnish Inc., Bedford, Ohio. Regardless of your needs, there is a Universal coating immediately available, or one that can be developed especially to meet your individual requirements. Our business is industrial finishes, and their correct adaption to rigid application, appearance and protective standards.

**For more data, circle 27 on colored card.**

**Ransburg's No. 2 Process** helps maintain high-quality standards. This process has been used effectively on electric food mixers, gasoline pumps, etc. Ransburg services, including the test painting of your products in our laboratories, are available to any manufacturer whose production justifies conveyorized painting. Ransburg Electro-Coating Corp., Indianapolis 2, Ind.

**For more data, circle 28 on colored card.**

**Perfex Satin Finishes,** the original "flat" made by a new and different process, without the use of stearates or other flattening agents, have cut the dust-free time, increased print resistance, increased body and build, improved clarity and color .... all of which combines to produce a wonderful rubbed finish effect appearance and a pleasant waxed effect feel. Available in a full range of sheens to produce the exact rubbed effect and waxed feel desired. Perfection Paint & Color Co., Indianapolis 2, Indiana.

**For more data, circle 29 on colored card.**

**For Stripping Conveyorized Paint Hooks,** racks, carrying baskets, reject parts, etc., Electro Cold Stripper is the easy, economical safe-to-use material. Electro Cold Stripper is non-flammable, requires no heat or current to activate and rinses away with water. Write for testing sample or submit sample parts for our full laboratory workup and recommendation. Allied Finishing Specialties Co., 2641 W. Grand Ave., Chicago 12, Illinois.

**For more data, circle 30 on colored card.**

**Water Wash Filters** filter deactivated overspray paint from the wash water before it can be recirculated and cause plugged nozzles and other trouble. Industrial Filtration Co., 96 Industrial Ave., Lebanon, Indiana.

**For more data, circle 31 on colored card.**

**Print-Proof Furniture Finish.** Rel-Var is a synthetic finish that withstands packing, shipment, storage and delivery where temperatures may reach 120° to 150° F. This finish doesn't soften and print or mar. The Rel-Var story is free. Reliance Varnish Co., Inc., 4730 Crittenden Drive, Louisville, Kentucky.

**For more data, circle 32 on colored card.**

**Natural and Synthetic Pearl** finishes in air dry or bake coatings for a variety of products, are offered by Rona Laboratories, Inc., E. 21st & E. 22nd St., Bayonne, New Jersey. Apply to metal, plastic, wood or glass surfaces.

For more data, circle 33 on colored card.

**Ionic Electrostatic Centrifugal Atomizer** breaks production bottlenecks. A low capital investment, it increases production, maintains quality, cuts paint consumption. Reciprocating and stationary models are available. Up to 20 color changes per hour can be made. Full details from Ionic Electrostatic Corporation, 111 Monroe St., Garfield, New Jersey.

For more data, circle 34 on colored card.

**Custom Industrial Finishes** can be created in our laboratories for your particular products. Stains, fillers, glazes, lacquers, enamels and synthetics can be developed to add a distinctive touch to your products and revolutionize your sales patterns within a few months. Wolverine Finishes Corp., 836-50 Chicago Drive, S.W., Grand Rapids 9, Mich.

For more data, circle 35 on colored card.

**"Rollacoat,"** the Gasway equipment for rollercoating, applies many types of coatings, increases production rates, coats wood, metal, fiberboard, cardboard, and plastics, gives higher labor efficiency and up to 50% less paint cost. Full information available from Gasway Corp., 6463 N. Ravenswood Ave., Chicago 26, Ill.

For more data, circle 36 on colored card.

**Drawer-Glide Waxes,** color or colorless, penetrate deep into pores of the wood thereby giving the drawers dimensional stability, a moisture-proof coating and lubricating the surfaces for easy sliding. Drawer Glide Waxes also beautify the wood and give surfaces a smooth, waxy feel. The Prillaman Co., P. O. Box 1024, Martinsville, Virginia.

For more data, circle 37 on colored card.

**Pre-Cut Masks** speed finishing. Protect surfaces from finishing to inspection. Hundreds of shapes and sizes of masks in stock or one can be made to fit your particular needs. For use in spraying, baking and tumbling. Free samples and bulletin 160-C available from W. H. Brady Co., 733 W. Glendale Ave., Milwaukee 9, Wisconsin.

For more data, circle 38 on colored card.

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**Mearlmaid Pearl Essence** or Nacromer applied to your product may provide the sales appeal you have been looking for. For 25 years the Mearl Corp., 124 E. 40th St., New York 16, N. Y., has pioneered the use of these pigments. Pearl essence pigments can be used on wood or metal furniture, plastic upholstery fabrics, decorative papers, jewelry, lighting fixtures.
**For more data, circle 39 on colored card.**

**U. S. Aluminum Baking Enamel** has proved successful in a 4-year test on NARCo bed springs. Produces a brilliant smooth surface and clean appearance, ruggedness, that makes boxing for shipment unnecessary, and rapid drying important in most production schedules. Is applied by dipping. Aluminum Co. of America, Paint Service Bureau, 1732-F Alcoa Bldg., Pittsburgh 19, Penna.
**For more data, circle 40 on colored card.**

**Dow Trichloroethylene, Neu-Tri,** is an outstanding cleaner for both ferrous and nonferrous metals, has a low fire hazard (no flash or fire point) and is low in toxicity. Other Dow trichloroethylene cleaners include Alk-Tri, and Hi-Tri. For metal stripping, Methylene Chloride excels in removing plating masking lacquers and cleaning precision parts. The Dow Chemical Co., Chemicals Sales Dept. 762-H, Midland, Mich.
**For more data, circle 41 on colored card.**

**"Cable-Way" Conveyors** can increase your production, reduce labor costs and improve painting and assembly methods. Parts and products can be moved on rotating hangers through burn-off oven, hand spray painting, electrostatic spray or bake oven. Track can be suspended or floor-mounted; is easily installed at low-cost. Catalog CDA gives full information. The American MonoRail Co., Conveyor Division, 4th & Franklin Sts., Tipp City 6, Ohio.
**For more data, circle 42 on colored card.**

**Met-L-Kote Machinery Enamel,** Cryst-L-Clad, Silver magic aluminum, one-coat counter rust finishes and production line finishes, are just a few of the many industrial finishes supplied by Adelphi Paint & Color Works, Inc., 86-00 Dumont Ave., Ozone Park 17, N. Y. Laboratory facilities are available to solve new finishing problems and formulate to your special requirements, using the finest raw materials.
**For more data, circle 43 on colored card.**

**Tough Finishes, Custom Made,** for display counters and racks in stores, in pastel colors, are among several recent bake finish creations for metal by Grand Rapids Varnish Corp., Grand Rapids 2.
**For more data, circle 44 on colored card.**

**"Duracron" Thermo-Setting Acrylic Enamel** combines in a single finish, superior adhesion, color and gloss retention, durability, flexibility and resistance to chemicals, grease, humidity, moisture, salt spray, stains and impact. Can be sprayed, dipped or roller coated. Excellent as a one-coat enamel or as a topcoat with various primers. Pittsburgh Plate Glass Co., Industrial Finishes Divn., 1 Gateway Center, Pittsburgh 22, Penna.
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**Restore Paint** to its original consistency without opening the container, whether in ¼-pint cans or in 55-gallon drums. Time required is only 2-minutes per gallon. Full information from Miracle Paint Rejuvenator Co., 128 E. 10th St., St. Paul.
**For more data, circle 46 on colored card.**

**Lacquers, NGR Stains,** and everything used for finishing fine furniture, cabinets, pianos, etc., plus styling and technical service—in Southeast U. S. A. Snyder Brothers Co., P. O. Box 631, Toccoa, Ga.
**For more data, circle 47 on colored card.**

**Finishing Ovens,** accurately controlled as to temperature, humidity and ventilation, bake variety of color coatings with satisfactory results. The Lanly Co., 2800 Euclid Ave., Cleveland 15, Ohio.
**For more data, circle 48 on colored card.**

**Roller Coaters** can boost your production, reduce down-time, cut coating costs. These heavy-duty machines are ruggedly and rigidly built to maintain high quality production. Apply paints, sealers, waxes, etc., to flat work such as wood, metal, plywood, plastic, etc. Literature available describing equipment with optional features to meet your finishing needs. The Black Brothers Co., Inc., Mendota 1, Ill.
**For more data, circle 49 on colored card.**

**Silk Screen** in silk, nylon or metal cloth and silk screen weatherproof enamel are available from The Naz-Dar Co., 461 Milwaukee Ave., Chicago 10, Ill., for use on nameplates, toys, dials, ash trays, printed circuitry, etc. Screen and ink information available by writing Dept. P-6.
**For more data, circle 50 on colored card.**

**MORSE DRUM UPENDER No. 32**

Takes the strain and effort out of upending heavy drums. Has 40" handle offset 35° for top efficiency. Hefty 1¼" hook provides clearance for largest chime. 2½" x 8" toe plate spreads lifting pressure over large area to prevent drum damage. Order Several Today!

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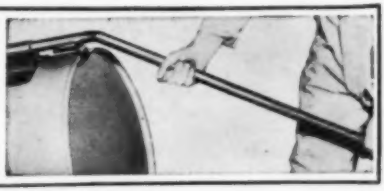
763 West Manlius St., E. Syracuse, N.Y.



**Burn-in Tools** and knives for making quick and skillful repairs to nicked, dented or scratched finishes. Made of hardened tool steel especially selected for the purpose. The Op-Al Electric & Mfg. Co., 3135 Martindale Ave., Indianapolis 5, Ind.
For more data, circle 51 on colored card.

**Titanox Titanium Dioxide White Pigments,** formulated into your finishes, help-maintain color, gloss, opacity and durability both indoors and outdoors. Titanox pigments are adaptable to any type of mixing and grinding program. Titanium Pigment Corp., 111 Broadway, New York 6, New York.
For more data, circle 52 on colored card.

**Instant Stripper**—For metal or wood finishes. A non-flammable, non-toxic stripper which removes almost instantly, most finishes—enamels, either lacquer or synthetic (baked or air-dried), paints, varnishes, etc. V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39.
For more data, circle 53 on colored card.

**Ovens, Washers, Air Heaters,** and complete finishing systems can be engineered and installed for your particular needs. Call or write Drying Systems Co., 1825 Foster Ave., Chicago 40, Ill.
For more data, circle 54 on colored card.

**Graining Plates** of any pattern, size or shape (wood grain, leather, marble, fabric, etc.) for hand or machine graining. American Richwood Products Co., 104 E. Mason St., Milwaukee 2, Wis.
For more data, circle 55 on colored card.

**Airless Spray Coating Equipment** for interior plant maintenance as well as product painting, gives a savings in clean-up time, less interruption of production due to minimum of fumes or paint in the air. Free Airless Spray Painting brochure will be sent on request. Nordson Corp., Amherst, Ohio.
For more data, circle 56 on colored card.

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**Automatic Viscosity Control** for spraying flow coating and dipping improves quality of painting and finishing by providing continuous uniformity of paint material. Norcross Corp., 247 Newtonville Ave., Newton 58, Mass.
For more data, circle 57 on colored card.

**Pearl Essence Finishes**—what they are and how to use them is included in a free Technical Bulletin offered by the Argenta Products Co., Eastport, Maine.
For more data, circle 58 on colored card.

**Half-Second Butyrate** lacquers give outdoor aluminum maximum protection. Is clear, non-yellowing, weather-resistant. This tough finish will protect the surface for long periods and the action of rain alone will remove the accumulation of most dirt and grime. Easy to apply, economical to use, excellent protection in one coat. Eastman Chemical Products, Inc., 260 Madison Ave., New York 16.
For more data, circle 59 on colored card.

**Agateen Clears** assure beauty, quality, good appearance and protection. Don't gamble with the sale of your products at the retail level. Investigate Agateen clear lacquers, air dry and semi-bake lacquer enamels and baking lacquers. Agate Lacquer Mfg. Co., Inc., Long Island City, New York.
For more data, circle 60 on colored card.

**Wood Grain Reproduction.** New sturdy high quality machines for exacting grain reproduction—some practically automatic in operation—are offered by Schmutz Mfg. Co., 1600 W. Main St., Louisville 3, Ky.
For more data, circle 61 on colored card.

**"Kem Enamel"** by the Sherwin-Williams Co., General Industrial Division, Cleveland 1, Ohio, is the special flow-Coat enamel without runs, sags or vapor wash. Kem Enamel flows on easily, resists scuffing and reaches every crevice to give a heavy continuous coating.
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**Dupor No. 4 Respirator** has double filters for easy breathing and greatest filtration of paint spray, dust and fumes. Soft rubber face mask gives an airtight fit. Patented Dupor valves bring in clean air and throw off breathed air. Weighs only 4-oz. H. S. Cover, P. O. Box 2508, South Bend 14, Indiana.
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**Free Generous Working Samples** of Multakolor, Syn-A-Lac, Uni-Versal Coating and Rust Inhibiting Finishes offered by United Lacquer Mfg. Corp., Linden, N. J.
For more data, circle 64 on colored card.

**"Vitrilan"** thermosetting acrylic finish resists detergents, abrasion, soaps, food and drug staining, light and heat. The right finish for home laundry and dishwashing appliances. Has excellent gloss and color retention on exposure to light. Produce whites that stay white. Bulletin IC. Vitrilan gives the complete story. Interchemical Corp., Finishes Divn., 224 McWhorter St., Newark 5, N. J.
For more data, circle 65 on colored card.

**Push-Button Touch-Up.** With the Sprayon Self-Spraying Touch-Up Tool, any employee can quickly repair the paint damage where it happens—on the production line, inspection, shipping, warehouse, etc. Free touch-up folder available. Sprayon Products, Inc., 2071 East 65th Street, Cleveland 3, Ohio.
For more data, circle 66 on colored card.

**Film Thickness Gauge** by Ferro Corp., 4154 E. 56th St., Cleveland 5, Ohio, measures thickness of porcelain enamel, paint, plastic, paper, glass, on flat and curved surfaces. This pocket-size thickness gauge, with leather case, assures correct reading every time. Weighs only 6-oz.
For more data, circle 67 on colored card.

**Portable Sanders**—electric or air driven, by the National-Detroit Inc., Rockford, Illinois, can be used on wood, metal, plastic, felt, stone and other surfaces. Straight line or orbital action. National sanders produce that smooth surface so essential to a fine finish.
For more data, circle 68 on colored card.

**Exposure Tests.** Actual weathering, corrosion and sunlight tests, direct and under glass for quick predetermination of durability and permanency in southern Florida by South Florida Test Service, 4201 N.W. 7th St., Miami 34, Florida.
For more data, circle 69 on colored card.

**Ideal Tack Rags** are used prior to painting, to wipe off and hold dust, dirt, sand particles and lint too small to see, but which might leave a blemish or defect on the final coat of paint or finish. Ideal Chemical Co., 1499 Dean Drive, South Euclid 21, Ohio.
For more data, circle 70 on colored card.

**Paint strainers** for straining lacquers, enamels, paints or varnishes. Made of heavy paper stock with cloth inserts in coarse, medium, fine and extra fine mesh, 6-in. in diameter. Louis M. Gerson Co., Box 175A, Mattapan, Mass.

For more data, circle 71 on colored card.

**New Color Styling** reflects the quality of furniture. Lindeman Wood Finish has both. For new colors and finishes, inquire at Lindeman's studio and laboratory in Galax, Virginia, or write Lindeman Wood Finish Company, Inc., Indianapolis 2, Ind.

For more data, circle 72 on colored card.

**Acrylic, Alkyd, Vinyloid** coatings for a wide range of special jobs, are offered by The Varnish Products Co., 5206 Harvard Ave., Cleveland 5, Ohio.

For more data, circle 73 on colored card.

**Multicolor One-Coat Finish** called "Spex" is featured by V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39, Ill. Provides a combination of two or more distinct contrast or harmonizing colors in one coat with standard spray equipment. Hides all surface irregularities. Suitable for finishing wood, metal, plastic, brick, concrete and all types of composition board. Dries like lacquer. Available in a great number of attractive stock colors. Color card available.

For more data, circle 74 on colored card.

**Mar-Proof Lacquer,** made by The Schaefer Varnish Co., Inc., Louisville, Ky., is a performance-proven finish that cannot be easily marred or scratched. Tougher than ordinary lacquers, it meets the most critical requirements of current production. Made in either clear gloss rubbing or satin finish, it produces a splendid transparent coating of full depth on maple, walnut, gum, mahogany and other cabinet woods. Working samples furnished without obligation.

For more data, circle 75 on colored card.

**Air-Dry Paint Quality** is advanced, at no cost premium, with new Isophthalic based resins by Oronite Chemical Co., 200 Bush St., San Francisco 20, Calif. Stronger film-to-metal bonding, outstanding film flexibility and better gloss retention provided by Isophthalic-based coatings means improved paint performance. These tougher films have greater abrasion resistance, weather resistance and are more resistant to chemical and industrial fumes. An Oronite field representative can demonstrate to you the superior properties of Isophthalic resin coatings.

For more data, circle 76 on colored card.

**Prillaman Drawer-Glide Waxes** penetrate deep into pores of the wood, thereby giving the drawers dimensional stability, a moisture-proof coating and lubricating the surfaces for easy sliding. They also beautify the wood and give surfaces a smooth, waxy feel. Supplied in color or colorless to be applied by spray, brush, sponge or dipping.

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MARTINSVILLE, VIRGINIA

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| SPRAY | DRUM | Washing |
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**"Luxon" Furniture Deluxing Wax** will enhance any finish, flats, sheens or oil finish. Contains no trouble-making silicones. "Luxon" deluxing wax makes your finish print-resistant and permanently free of haze. Old-North Mfg. Co., Lenoir, North Carolina.

For more data, circle 77 on colored card.

**Solvents and Chemicals** for thinning materials, for cleaning and other special requirements, are available in drums or tank cars from any one or more of the companies in the group, strategically located. The Solvents & Chemicals Group, 2540 W. Flournoy St., Chicago 12.

For more data, circle 78 on colored card.

**"Cres-Lite" Bronze Powders** for spraying, dipping or flow coating give a plated effect like a pure metallic bronze powder. A full range of 33 colors are in stock, or colors can be matched to suit your particular needs. New colors and shades of metallic finishes can be created in our Design Department. New color card showing our "in-stock" bronze powders is free upon request. Crescent Bronze Powder Co., 118 W. Illinois St., Chicago 10, Ill.

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**Satin Finish Wooling Lacquers** are ideal for use where a satin sheen finish with a smooth, silky feel is desired, without requiring a costly rubbing operation. Available in water white light resistant, for use on white or pastel finishes, or in regular lacquers for darker shades such as mahogany, walnut, etc. Made by The Lawrence-McFadden Co., 7430 State Rd., Philadelphia 36, Penna.

For more data, circle 80 on colored card.

**Complete Paint Finishing Systems,** such as flow coating, dip coating or automatic spraying, metal cleaning and phosphatizing equipment, baking ovens, air replacement system and conveyors can be engineered and installed by The Spra-Con Co., 3600 Elston Ave., Chicago 18, Ill. The Spra-Con bulletin illustrates and describes many installations of complete paint finishing systems.

For more data, circle 81 on colored card.

**"Letter Fill"** for filling recessed letters, symbols and numerals with paint on plastic or metal surfaces. A bulletin describes problems involved with using coatings and dry wipes on second surface clear plastics, as well as machine applications and different types of masks that can be used. Logo Division, Bee Chemical Co., 12933 S. Stony Island Ave., Chicago 33, Illinois.

For more data, circle 82 on colored card.

**"Klarifiant" Spray Booth Compound** guarantees no foam problem, clean booths, no build-up, perfect paint "kill," no clogged nozzles, less manual clean-up, no booth rusting and low over-all cost. Complete information available from The DuBois Co., Inc., 1120 W. Front St., Cincinnati 3.

For more data, circle 83 on colored card.

**Paint Color Uniformity** can be assured on, and in, manufactured products, plants, industrial installations, tools and equipment, by using the Bowles Color Drift Control System. It is time-proved, easy to use, costs little, saves much. Details available from the Bowles Color Drift Control System, 75 Third St., San Francisco 3, California.

For more data, circle 84 on colored card.

**Bond Tack Cloth** for "Speck-Free" finishes every time. Save time and work with Bond Tack Cloths in handy rolls, bulk, white or gold, in four different kinds of cloth. Bond Chemical Products Co., 2641 N. Clybourn Ave., Chicago 14, Illinois.

For more data, circle 85 on colored card.

**Screen Process Catalog.** Everything used in connection with screen process work—materials, supplies, tools, equipment—is listed, illustrated and described in a new 120-page book distributed by Advance Process Supply Co., Inc., 1442 W. Kinzie St., Chicago 22, Ill. An alphabetical index of contents appears on the last page.

For more data, circle 86 on colored card.

**Aluminum Finishing Operations,** including etching, cleaning, brightening, barrel finishing, deoxidizing, etc., can be accomplished with Wyandotte Chemicals. For complete information on "Mil-Etch," "Altrex," "Phos-It," etc., write Wyandotte Chemicals Corp., Dept. 3035, Wyandotte, Michigan.

For more data, circle 87 on colored card.

**Seven New Product Finishes** including Tex-Dur Finish, the leather-like vinyl coating, lacquer for plastic, non-slip carton coating, Stip-Tone, the tough decorative metal finish, VX baking enamel white, paper coating for clear, high-gloss protection, and Hydrolex baking primer, the red water emulsion finish. These new P & L finishes as well as specialized help on your own finishing problems, can be obtained by writing Pratt & Lambert Industrial Sales, Dept. B, Buffalo 7, N. Y.

For more data, circle 88 on colored card.

**Metalprep Rust Remover** thoroughly rids metal of rust and assures greater paint durability. Other products for metal conditioning, phosphatizing and preparing metal for paint are Lyfanite A, Phosteem, Prepncote, Lyfanite Z, Galvaprep, Alumiprep and Emulsoprep. General Brochure 57-147 gives complete information on metal conditioning, phosphatizing and preparing metal for paint. Write Neilson Chemical Co., 2306 Gainsboro, Detroit 20, Michigan.

For more data, circle 89 on colored card.

**Parlon - Fortified Production - line Finishes** speed up production because they are fast-drying. Parlon chlorinated rubber finishes dry dust-free in 15 minutes, and in 30 more minutes tape can be applied to mask for the second color. Mobile homes finished in Parlon-fortified alkyd finishes can be moved outdoors for final curing 90 minutes after first coat is applied. Parlon-fortified finishes can probably be used to extra advantage on your product. Write Cellulose Products Department, Hercules Powder Co., Inc., 900 Market St., Wilmington 99, Dela.

For more data, circle 90 on colored card.

**DeBurgh Finishing Systems** are completely flexible. Can handle many types of products at one time, travel vertically or horizontally. Can be speeded up or slowed down according to a predetermined schedule. DeBurgh conveyors save labor, money, space and time. Data sheets on the Complete DeBurgh Conveyorized Finishing System are available from George Koch Sons, Inc., Evansville 4, Indiana.

For more data, circle 91 on colored card.

**Hollow Cone,** flat spray and full cone, are three of the controlled-flow spray nozzles available from Spraying Systems Co., 3240 Randolph St., Bellwood, Ill. Complete information on these and other types of nozzles are available from the company. Ask for catalog No. 24. Controlled-Flow spray nozzles give exact control of pattern, impact, volume and distribution for any liquid at any pressure.

For more data, circle 92 on colored card.

**Laboratory Experts** are available to help you solve your finishing problems. Finishes for aircraft, composition products, office equipment, plastics and wood or metal products can be formulated and developed for your particular needs or product. Randolph's skilled technicians can help you solve any difficult finishing problems. Randolph Products Co., Carlstadt, New Jersey.

For more data, circle 93 on colored card.

**TOMORROW'S Products Tested TODAY**

A service to aid industry in producing longer-lasting and better-looking products. Quick predetermination of durability and permanency by actual exposure test in South Florida. Write us today for full information.

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EST. 1931

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**FOR STRAINING LACQUERS ENAMELS, PAINTS OR VARNISHES.**

Made of heavy paper stock with cloth inserts in coarse, medium, fine or extra fine mesh. 4" in diameter.

**LOUIS M. GERSON CO.**

CUnningham 6-1463

BOX 175A MATTAPAN, MASS.

**Protective and Decorative Finishes** for wood and metal finishes can be formulated for your particular products. Our business is devoted to finding the best formula for a given material under a given set of conditions. Rockford Varnish Co., Rockford, Illinois.

For more data, circle 94 on colored card.

**driQuik Radiant Infrared Industrial Ovens** for low cost drying, baking, heating and curing are described in Data Booklet D117. Booklet shows how driQuik infrared generators save money in operation because they have no bulbs or sockets to burn out, and gives details of our free field testing service right in your own plant. Write Dry Clime Lamp Corp., driQuik Division, Greensburg, Indiana.

For more data, circle 95 on colored card.

**"Flexitite"** is a finish of remarkable adhesion and flexibility for use on sheet metal surfaces, including aluminum. Is satisfactory for cast metal surfaces. Can be sprayed or dipped; can be air dried or baked, and is offered in clear, red, gray and black. Has good durability, color fastness and mar resistance. Standard Color & Chemical Co., Inc., North Bergen, New Jersey.

For more data, circle 96 on colored card

**Standardized Spray Booths** save assembly costs. Prefabricated parts bolt together to form a rigid, self-supporting structure. Wide selection of sizes and types available. Spray booths can be engineered and designed to meet your particular finishing schedule and your own products, or 500 standard sizes and combinations will fit your needs. Booths are manufactured to the standards of the National Board of Fire Underwriters. Spray Booth Catalog I-7000 is available from The DeVilbiss Co., Toledo 1, Ohio.

For more data, circle 97 on colored card.

**Protects Silver Plate** from tarnish or discoloration, even after weeks of contact with stretched rubber band. Nikolas 2105 Clear Lacquer withstood this test, and many others of equal severity. G. J. Nikolas & Co., Inc., 2850 Washington Blvd., Bellwood, Ill.

For more data, circle 98 on colored card.

**Semi-Automatic Spindle Spraying Machine,** with rotating vertical spindles, mounted on a conveyor, spin the parts to be finished. Operator coats the parts as they pass his station. Spindles can be spaced to accommodate large parts on alternate spindles or smaller parts on every spindle. Automatic parts handling speeds production, gives uniform finish, material waste is minimized and rejects are reduced. Free analysis and engineering help are available to show how an automatic spindle spraying machine can be used to coat your product. Binks Mfg. Co., 3116 Carroll Ave., Chicago 12, Ill.

For more data, circle 99 on colored card.

**Unichrome Coating 6400** gives a rich texture of morocco leather in a sprayed vinyl finish. Produces a flexible, chip-proof mar-resistant finish which withstands corrosion. Metal & Thermit Corp., Rahway, New Jersey.

For more data, circle 100 on colored card.

**Corrosion-Resistant Plastic Coatings** that withstand splash, spillage and fumes of corrosive chemicals have been developed by Better Finishes & Coatings, Inc., 278 Doremus Ave., Newark 5, N. J., under the name of BFC Urethanes. These coatings are resistant to abrasion, heat, sunlight and weather, and have exceptional flexibility. Free booklet entitled, "What Every Maintenance Man Should Know About Urethane Coatings" is available upon request.

For more data, circle 101 on colored card.

**Duracote Finishes** for Spray Booth Operation and bake drying, and Speed Duracote for open air spraying and a quick dry, have been developed by Tousey Varnish Co., 520 W. 25th St., Chicago 16, Ill. Duracote produces a tough, durable surface, and goes on smoothly and dries flawlessly. Speed Duracote has the same qualities plus the quick drying features of a dust free surface in ten minutes or a tack free surface in 20 minutes.

For more data, circle 102 on colored card.

**Arolon 304 Base Finish** ends the fire hazard. Arolon 304 has high gloss, good adhesion and resistance to freeze-thaw conditions. Because it is a solution, not an emulsion, Arolon 304 paints deposit a continuous film and carry as full a load of pigment as dangerous solvent-type paints. Bulletin 110B gives more facts. Archer-Daniels-Midland, Resin and Plastics Divn., 739 Investors Bldg., Minneapolis, Minnesota.

For more data, circle 103 on colored card.

**Exon Engineers** meet demands of various types of protective coatings with resins pin-pointed to specific needs. Five dif-

ferent Exon solution resins are available, each differ in solubility and adhesion to fit precise requirements of various solution coatings. Each is resistant to chemicals, abrasion, corrosion and weather. All dissolve quickly in appropriate solvents. For a solution resin pin-pointed to the best answer for you, check with Firestone Plastics Co., Chemical Sales Divn., Dept. 845H, Pottstown, Penna.

For more data, circle 104 on colored card.

**"Teflon" Finishes** have surfaces so slick nothing can stick to them, not the strongest glues or most clinging liquids or solids. Teflon resists constant abrasion, and is not affected by temperatures from 390° below zero to 480° above, and are water-repellent and completely inert to almost every known chemical. For information on how a Teflon finish may be of use for your particular needs, and an illustrated booklet on Teflon, write E. I. du-Pont deNemours & Co., Finishes Divn., Wilmington 98, Dela.

For more data, circle 105 on colored card.

**Spray Mask Painting Machines,** spray mask washing machines, finishing equipment and custom units for special finishing, as well as spray masks, jigs and fixtures, are supplied by Thierica Studio, 900 Clancy, N.E., Grand Rapids 5, Mich. Send part, print or sample, and special attention will be given to your particular masking or finishing problem. Special masks and special tooling can be designed for your product.

For more data, circle 106 on colored card.

**FINISHES COUSULTANT**

**It only appears impossible until it has been done.**

***E. A. ZAHN***

**4304 Alton Road, Louisville 7, Ky.**
**Telephone, TWinbrook 5-4349**

**Be Sure of a Perfect Finish!**

**"DUSTIX" TACK RAGS**

Glassine Bagged or Bulked Packed. Long lasting—spontaneous combustion-proof. Prompt quotations and shipments. Write

**Modern 1st Aid Mfg. Co., Ind. Div.**
737A W. Randolph St., Chicago 6, Ill.

**A Ready-to-Finish Primer,** produced by Minnesota Paint, Inc., 1101 Third St. South, Minneapolis 15, Minn., was applied to Insulite Primed siding, and gave an "armored" surface highly receptive to the finish coating, and provided an ideal base for economical one-coat finishing. If product finishing is your problem, a "Man from Minnesota" can put chemical science to work for you.

For more data, circle 107 on colored card.

## CLASSIFIED ADVERTISING

**The rate on ads appearing in this department is $1.00 per line of 6-pt. light face type, per insertion. Minimum charge, $5.00. Ads set in 8-pt extra bold face type cost $2.00 per line, per insertion.**

### METAL FINISHING SUPT.

Available July 1, thoroughly experienced in all phases of technical and practical application of organic coatings. Good production man, familiar with Quality Control, Lab. testing, cleaning solutions and solvents. Very good on hangers, shop layout and equipment. Considered as painting engineer on dipping, flow coating, electrostatic, automatics. Will relocate. Address IF-577, care Industrial Finishing.

### FINISHING SUPERINTENDENT AVAILABLE.

Twenty years' experience in all phases of Industrial Finishing, including Manufacturing, Technical Service and Sales of Synthetic and Lacquer Materials; Specification Writing, Material Analysis and Trouble Shooting; Production Supervission, involving Wage Rates, Labor Grievances, Methods, Budget and Production Control. Facilities Planning, Design and Construction on Automatic, Electrostatic, Flow-Coating, Dip and Spray aPinting Equipment; Excellent References. Address IF 585, care Industrial Finishing.

### FINISHING FOREMAN AVAILABLE.

Ten years' experience in metal finishing. Age 28, married. Will consider any location where prospects are good. Can furnish top references. J. R. MONDAY, 2367½ Stuart St., Indianapolis 18, Ind.

**TECHNICAL SERVICEMAN.**

Extensive experience in the industrial finishing field. Prefer Midwest. Address IF-578, car Industrial Finishing.

**POSITION WANTED.**

Recent graduate industrial designer. Military Service completed. Interested in position with older designer, studio, or company desiring young man with new ideas. Address IF-579, care Industrial Finishing.

**FINISHING FOREMAN WANTED.**

Must be able to handle and mix all types of finishes in 3-man finishing department for custom built store and bank fixtures. GOEBEL FIXTURE CO., Hutchinson, Minnesota.

**FACTORY MANAGER WANTED AT ONCE.**

Man capable of organizing and directing production, scheduling and quality control in new enlarged plant finishing hardboard and plywood paneling. Must have thorough knowledge of methods and be capable of directing the layout of plant, which is located in the Southeast. Salary open. Give full qualifications, education and employment record. Address IF-580, care Industrial Finishing.

**ORGANIC FINISHING CHEMIST.**

Fine opportunity in well equipped lab of large metal fabricator in development and trouble-shooting problems with applications and uses of organic finishes. Some knowledge of characteristics and applications of plastics also necessary. Experience required, degree preferred. Send resume giving education, experience, salary dsired, etc., to Personnel Dept., THE STANLEY WORKS, New Britain, Conn.

## PAINT CHEMIST WANTED

**With broad experience for laboratory technical service on the application of Neville resins and solvents in the coatings industry. Contact William Ittel for details. NEVILLE CHEMICAL CO., Neville Island, Pittsburgh 25, Penna.**

## PAINT CHEMIST.

Excellent opportunity in medium size paint business for a man, age 30-40, with practical background in the formulation and application of industrial finishes.

**SEND DETAILS OF EXPERIENCE AND SALARY REQUIREMENTS TO:**

**Manager, Employee Relations**
**Insulating Materials Section**
**General Electric Company**
**24 River Rd.**
**Schenectady 1, New York**

**INDUSTRIAL FINISHES CHEMIST WANTED.**

Lacquer company in New York metropolitan area has opening for man familiar with lacquer and synthetic finishes on wood, metal and plastics; and who is capable of heading up laboratory. Send complete resume with salary expected. Address IF-583, care Industrial Finishing.

**EXPERIENCED SALESMAN WANTED**

For wood and metal finishes, for position in Indiana and Michigan, by well-known midwestern manufacturer of industrial finishes. Salary and expenses. Address IF-581, care Industrial Finishing.

**SALES REPRESENTATIVE WANTED**

Now calling on furniture and woodworking industry, to sell line of wood and marble finished hardboard. Commission basis. Earning potential is tremendous. Write PANELBOARD MANUFACTURING CO., 222 Pacific St., Newark 5, N. J.

**INDUSTRIAL FINISHES SALESMAN.**

Wanted for New Jersey, experienced salesman with following, for extensive line Industrial Finishes. Some laboratory and application background helpful. Territory presently producing. Write Product Finishes Div., STANDARD-TOCH CHEMICALS, Inc., 2600 Richmond Terrace, Staten Island 3, New York.

**SALESMAN WANTED.**

Experienced Industrial Finishes Salesman for Metropolitan New York and nearby area. We have considerable business to turn over to an aggressive, capable man. This, together with your own volume, should produce a high return in net earnings. Excellent future with a progressive company established four decades. Replies held confidential. Our employees are all acquainted with this advertisement. Address IF-584, care Industrial Finishing.

**SALESMAN—INDUSTRIAL FINISHES.**

Well established and expanding manufacturer in the Newark area will consider an experienced man with proven record of achievement selling industrial finishes. Our proposition and an exceptional opportunity for security and high earnings allow us to insist on highest qualifications. Answer in detail. Replies confidential. Address IF-559, care Industrial Finishing.

**ATTENTION: ALL FINISH SALESMEN.**

If your present line does not include varnish, you are missing a bet. PERFEX VARNISHES are unexcelled (yes unequaled) and are well known by volume finish users. Look at our display advertisement on page 19 of this magazine. If you are interested in the possibility of taking on PERFEX VARNISH in addition to your present line, write us. All replies will be held in strict confidence. PERFECTION PAINT & COLOR CO.

**WOOD GRAINED HARDBOARD.**

Plastic Coates 5/32-in. Mahogany grained hardboard, 4x4-ft. sheets, 18¢ square foot. Quotations made on other finishes and sizes. Address IF-582, care Industrial Finishing, for samples.

**PREFINISHED PANELBOARD.**

New wood and marble finished ¼-in. thick tempered hardboard. Superb "Evadur" plastic finish is ideal for table tops, etc. Variety of modern patterns to choose from. For samples and prices write PANELBOARD MANUFACTURING CO., 222 Pacific St., Newark 5, New Jersey.

**FOR SALE.**

Fully equipped, automatic paint line machinery, with all electrical controls, pressure pots, and paint pump lines. Keystone conveyor line 375-ft., operating speed, 5-ft. per minute. Cincinnati Cleaning and Machinery Co. 3-stage wash line, Chromolux Dry-off oven; 2 DeVilbiss automatic vertical transverse machines set up in DeVilbiss spray booths. 40-ft. Chromolux oven, working capacity, 7-ft. high. Now in building, can be removed. Reply to N. BECKER, P. O. Box 397, International Airport Branch, Miami 48, Florida.

**WANTED.**

Dirty solvents and thinners. Please send samples. Have clean reclaimed solvents for sale. Modern efficient solvent recovery service. Will process for customer, material at fraction of the original cost. ACME RECLAIMING, Inc., 1915 20th Ave., Rockford, Illinois.

**DIRTY THINNERS AND SOLVENTS WANTED.**

Send samples and letter giving approximate contents. GET CASH FOR SCRAP. THE JOHANN COMPANY, 13900 Grant St., Dolton, Illinois. Phone Dolton 4850.

**VANDEGRAAFF Electrostatic Flocker, complete kit now $37.50. For literature write INDEV, Box 517, Pawtucket, R. I.**

**DON'T BUY ANY ONE OF THESE ITEMS**

UNTIL YOU GET OUR LOW PRICES! WE CARRY A LARGE STOCK OF REBUILT USED FINISHING EQUIPMENT INCLUDING AUTOMATIC CONVEYORIZED SYSTEMS.

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| SPRAY BOOTHS | CONVEYORS | PHOSPHATIZING UNITS |
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| PAINT HEATERS | OVENS | DEGREASERS |
| PRESSURE TANKS | LIGHTS | PUMPS, MOTORS, ETC. |

GENERAL EQUIPMENT & TRADING CO. • 2629 W. GRAND AVE., CHICAGO 12, ILL.

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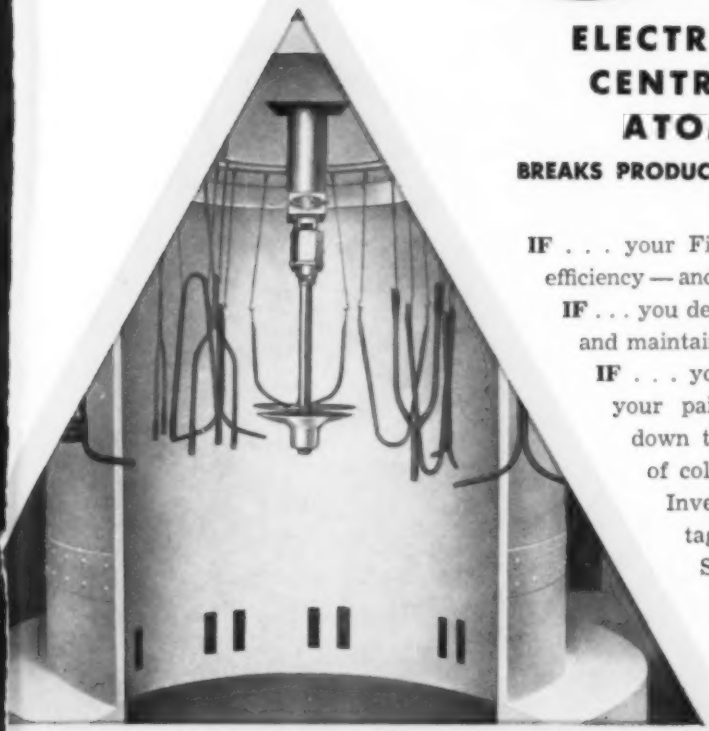
*Advanced*

# IONIC

## ELECTROSTATIC CENTRIFUGAL ATOMIZER

**BREAKS PRODUCTION BOTTLENECKS**



**IF** . . . your Finishing Department lacks efficiency — and

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**IF** . . . you would like to decrease your paint consumption and cut down time between change over of colors — then

Investigate the many advantages of an Ionic Electrostatic Spray System. Various systems are available.

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- ★ LOW CAPITAL INVESTMENT
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- ★ NO ROYALTIES
- ★ UNITS SOLD OUTRIGHT

**MODEL - 50 IONIC CENTRIFUGAL ATOMIZER**

(Reciprocating and Stationary Models Available)

UP TO 20 COLOR CHANGES PER HOUR
CAN BE MADE WITH THIS IONIC CENTRIFUGAL ATOMIZER.

ELECTROSTATIC IONIC CORPORATION

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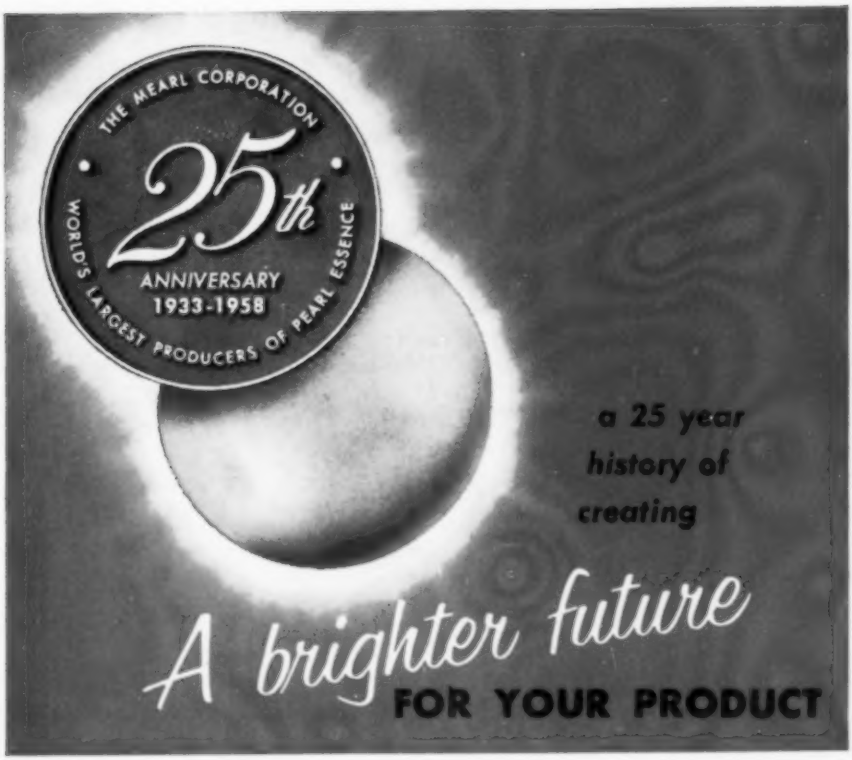


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For twenty-five years, The Mearl Corporation has pioneered the use of these pigments. Used initially as a finish on jewelry and a few related items, the range of applications has expanded widely. Today, these pigments are used for lighting fixtures . . . for wood or metal furniture . . . for plastic upholstery fabrics . . . for decorative papers . . . for cosmetic packaging . . . and for countless other products.

As a surface coating mixed with ordinary coating materials and applied by standard methods, or, compounded directly into many plastic resins, a thousand and one new decorative and functional uses are within your reach. The application of Mearlmaid Pearl Essence or Nacromer to your product may provide the sales appeal you have been looking for.

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**the Mearl corporation**
*WORLD'S LARGEST PRODUCERS OF PEARL ESSENCE*

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**NEW YORK 16, NEW YORK**